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NAVAL EDUCATION.

By the author of "Sketches of Naval Life."

HAVING just returned from a cruise of nearly four years, it is but recently that I had an opportunity, for the first time, of visiting the rooms of the Naval Lyceum. As I had no part in getting up this Institution, and but a few days since became a member, I may speak freely in praise of it, without fearing the charge of self-commendation. The collection, for the brief time the society has been in operation, is truly a magnificent one, and most effectually proves two things—first, that there is among naval officers an active and earnest desire to increase their means of information; and secondly, that the public largely applauds and seconds their endeavors, the last being manifest, in the munificent donations to the Lyceum of paintings and books, from numerous individuals not belonging to the Navy.

My object, however, is not to praise the Lyceum or its patrons, though both are deserving of praise, but to seize the occasion to ask, *whether we may not at length have a Naval College?* For many years I have witnessed, in the Navy, a yearning among all classes for better means of education; and though repelled, chilled, and forced through a long trial, still the feeling would not become extinct, and it has at last worked its way out, and the public has applauded it. Yet all this is but a small portion of what is needed. We need a college. Officers have shown that they feel the want of

such an institution, that impulses are at work among them that would lead them to appreciate and improve from it; and the public has raised its voice in encouragement of such impulses, and our national coffers are at present full to overflowing; and now, may we not have a college?

There is another view of the subject, however, which I wish to bring forward, and from which I think we may anticipate a good result. A Naval College would now be a matter of economy.

A law was passed about a year ago, abolishing the office of schoolmaster, and creating that of Professor of Mathematics, with a salary of $1200 on shore, and of $1272 when at sea. This was a munificent thing on the part of our National Legislature, and shows a ready willingness to furnish officers with good means of education. The examinations which candidates for this situation undergo, are said to be very strict; and the result will doubtless be, to produce a very able set of teachers. The success which will probably attend their labors, I will discuss by and by: at present, I wish to speak of the expense of this new system. One of our sloops, if I mistake not, lately sailed on a cruise, with a Professor of Mathematics on board, from which we may infer that it is the intention of the Department to furnish this class of vessels with such officers, in the same way as they have heretofore been furnished with schoolmasters. And the case would seem hard if it were not so; for why should the twelve or fifteen young men on board each of these ships be debarred the privilege of studying with such advantages, if advantages they be, while others on board frigates and seventy-four's are enjoying them? About one half of our active force consists of sloops; and by excluding them, we should exclude nearly one half of our midshipmen from the society of such teachers, while the other half would be enjoying it; and, as no allowance for want of privilege can be made at the examinations of midshipmen, it would make the case often a hard one, as regards a very large portion of those officers. It cannot be said that my argument proves too much, as it would extend to schooners also; for schooners, on duty, are few in service, and require but few midshipmen,

and it is the custom of our commodores to change the officers frequently. Then, if Professors of Mathematics are to be allowed to sloops, the case will stand somewhat as follows:—We shall probably have hereafter, on the Mediterranean station, one 74, two frigates, and two sloops—five; in the Pacific, one 74, one frigate, one sloop—three; Brazil, one frigate and one sloop—two; West Indies, one frigate, two sloops—three; East Indies, one sloop or frigate—making in all fourteen vessels of a class to be entitled to this grade of officers. We will say that twelve Professors of Mathematics are employed, which, with the addition of those at the New-York and Gosport yards, make fourteen; the pay of the former being $17,808, and of the latter $2,400; equaling in all $20,208 per annum, to this class of officers on duty: and allowing five on leave of absence, at $800 per annum, we have $24,208 as the yearly pay of Professors of Mathematics.

To this we must now add the money paid on board our ships to teachers of languages, as this branch cannot of course be expected from the Professor of Mathematics. How many of our vessels are provided with such teachers I am not able to say, but my impression is, that they amount to about one half. The pay of this class of officers varies, as there is no special provision for them: under the present system of things, I suppose they would be ranked as petty officers, and, in addition to their pay as such, would receive something from their pupils, a course which I have several times seen resorted to. We may estimate the cost to government, under this head, at $312 each; and, supposing two at the yards abovementioned, the whole pay given them will amount to $2496, which, added to the $24,208, will swell the yearly pay for education to $26,704.*

Now let us endeavor to see what would be the yearly expense of a Naval College. Governor's Island has often

* When this article was prepared, the writer had not yet seen the bill now before Congress for the increase of our Naval force in commission. If we enlarge our calculations to the extent of this bill, the yearly cost of instruction will be $48,368—a very large sum, but which cannot be diminished if we would extend equal privileges to all our officers.

been spoken of as excellently adapted to such an institution; and a better place could not easily be found. If established there, the ground would cost nothing; and if not so established, we have other eligible spots belonging to government; and at the worst, the ground need not cost more than $40,000 or $50,000. We will suppose the latter sum. The buildings for Students, Professors, &c. we will estimate at $80,000; for apparatus, books, and matters of this kind at the outset, we will say $50,000; the interest of all of which equaling $10,800, we will call the yearly cost of this part of the institution.

The College would require a first and a second officer, and as these would readily be found among our present Commodores and Captains, without creating a necessity for more of such officers in the Navy, the expense under this head is no more than the difference of their pay when on and off duty—say $2000.

The number of Professors that would be needed, would be, I think, about seven, with two assistants,—namely: 1, a Professor of Mathematics and Natural Philosophy; 2, a Professor of Theoretical and Practical Navigation, with an assistant; 3, a Professor of Chemistry, Mineralogy and Botany; 4, a Professor of Seamanship, with an assistant; 5, a Chaplain, who would also be Professor of English Literature, History, and Moral Philosophy; 6, a Professor of French; and 7, a Professor of Spanish. This list may be imperfect, and, I confess, my ideas on the subject are not well digested; but I presume that the *number* of Professors and assistants is about that which would be required. Of the Numbers, 1, 2 and 4, and the assistants could be procured from among our Lieutenants in the same manner as the first and second officers from among the Captains of the Navy; and at $1,700 and $1,500 salary, the additional expense thence arising would be but about $2400; No. 3 would require $1700; No. 5 would require an additional Chaplain, say for $1500; while 6 and 7 would require about $1200 each; the whole expense amounting to $7700, which added to the above $2000 and $10,800, makes in all $20,800, or, if the ground is not to be purchased, $17,800 as

the yearly cost of a good and effective Naval College. Some of my estimates may be wrong, but if so, I stand ready for correction.

We now come to a more important matter than that of economy; and it is one on which I am prepared to speak with more confidence than on the last. I mean the benefits likely to result from the present system of Professors of Mathematics. I have been six years and a half in the Navy; and, nearly all that time, a teacher of Navigation on board ship. During my first cruise in the frigates Brandywine and Constitution, it was my especial duty; and during the last, on board the frigate United States and the Delaware, I undertook the office agreeably to the request of the Commander, as by so doing, the teachers of Languages were enabled to be rated as Schoolmasters, and receive a competent salary. I have also been intimate with the Mathematical teachers on board a great many other vessels, and have had opportunities of forming a fair judgment of their labors and success. A number of them have been graduates of our Colleges; and two among them have also been Tutors in Yale College. The result of this observation and experience is *an almost utter hopelessness as regards any good to be effected by teaching on board ship.*

As regards my own case; in the Brandywine, I effected very little, almost nothing. In the Constitution, matters, owing to peculiar circumstances, went on better. Our commander personally inspected the school, and required written weekly reports of absences and their causes, and of the studies of the officers, and their improvements; and also a semi-yearly report to the Secretary of the Navy. He was severe in his censures for every unnecessary absence, and unyielding in his requirements of diligence and improvement. The young men winced under this at first; and, particularly, did not like "being forced to attend school like boys," but soon became reconciled, and began to improve. What, however, was greatly to the purpose, in this ship, was that we had an unusually large number of old midshipmen, whose time of examination was close at hand. They were forced to study: and this influential class of

officers setting the example, the rest followed on; and, during one summer, we had a very interesting school; the officers studying hard and succeeding well. It was, however, for one summer only. The school was at the usual place, an apartment screened off on the half deck. As winter approached, this place became too cool; we made a brief trial in the steerage, the only place left, and every one who knows a steerage, will know that our school was soon a complete wreck. In the spring, when the weather became fine, we set about repairing it; but the old ground had all to be passed over again: reviewing is, any where, very tedious work; and we found it particularly so after a winter at Mahon; and, to make my story short, the school was gradually abandoned;—a few of the older midshipmen only pursuing their studies about the decks, and calling occasionally for my assistance.

I have been particular in noticing this school, because it is the only one I have ever known to succeed; and I use this language, because the success was not owing to myself, but to the decisive and judicious measures of Commodore, then Captain, Patterson, and to the fact, that so many of the midshipmen were near their examination; and examinations being then (1826) a new matter, were very greatly dreaded. As regards the midshipmen, matters now are much more unfavorable to a teacher's success, than they were at that time. The older midshipmen in our ships now are all *Past Midshipmen;* and, as they have already gone through the fiery ordeal of examination, there is little inducement for them to study mathematics. They cannot be made to attend school; they are not idle,—indeed are generally far the reverse; but their time is usually given to history and languages, a course which, indeed, we cannot but approve, but which is no incentive, or but a very feeble one to the younger officers in their more severe mathematical studies. I consider the present system of past midshipmen to operate unfavorably, on ship-board, as far as regular study is concerned. The older midshipmen being thus withdrawn, the school then consists of a number of young gentlemen, with the thoughtlessness

characteristic of that age, assisted by a variety of untoward circumstances. They are subject to be called away at any moment to boat or other duty, and are often so called; around them is the bustle inseparable from a man-of-war, and there are a thousand matters to draw off their attention; and worse than all this, they are probably dull and sleepy, the effects of the morning watch. Almost universally midshipmen are divided into three watches—the school occupies the forenoon—one watch is of course on deck, leaving the remaining two-thirds below for the school. Of these pupils, one half have been roused up at four o'clock to superintend washing decks and other cleansing operations; and the other half have had the deck watch, four hours, beginning at midnight, at the expiration of which they have been able to catch a little sleep. Can we wonder that such young men do not study? It is a thing almost impossible; and often, when obliged to impress on the young men the necessity I was under of reporting their non-attendance or negligence, it was with pained feelings, from the conviction that I was acting against the useful requirements of nature. Once, or twice, at their urgent request, I prevailed on the commander to put them in four watches instead of three; but there is a prejudice in ships against such a course, and though I know not the cause of it, from its being so general, I suppose it must be just.

Indeed a place cannot well be found more unfavorable to habits of close application, than a man-of-war; and even he who goes on board with such habits already formed, will be apt very soon to relinquish them. The excitement from sight-seeing, the numerous interruptions, the bustle, the fondness for society which is apt to grow upon us, and the ease with which it is found, all these operate as checks in the way of a student, which few persons are able to resist.

THE MERCHANT SERVICE.

By a Member of the United States Naval Lyceum.

HAVING seen much of the Merchant Service, and witnessed the want of system and economy in its administration, I have thought that some suggestions, on this important subject, might be acceptable to such of the readers of the Naval Magazine as are connected with the mercantile interests of the country.

I have always entertained the opinion that the owners, masters, and crews of merchant ships would be mutually benefited by the adoption of a uniform system of equipment and disbursement, and the idea recurred to me more forcibly very recently, when we had reason to anticipate a war with a great and powerful nation; in the event of which, those vessels that ventured beyond our ports, unattended by convoy, must of necessity have been well armed and manned; and the want of that order and discipline so indispensable in armed vessels, would have rendered the precaution of arming them almost useless. Although there is now but little prospect of war with any power, yet as some benefit may be derived from the discussion of the subject, I shall endeavor to point out such improvements as may tend to the interests of the owners, and essentially promote the comfort of all concerned.

No one can find fault with the construction, the masting, the rigging, or the internal arrangement for the accommodation of the officers and crew, or the stowage of the cargo of our merchant ships; they are admirable in all these respects, and are generally commanded by experienced, gentlemanly and faithful men. In their outfit and discipline there are many imperfections, which may easily be corrected, and grievances on the part of the officers and crew, which ought to be removed.

I do not intend to impute to ship owners any contracted or sordid views. As a class I believe them to be high minded and liberal, and I am convinced that they would most readily adopt any suggestions calculated to ameliorate the

condition of that devoted class, to whose patient industry, and exposure to perils and privations, may be mainly ascribed the unparalleled prosperity of our commercial interests. As one familiar with the merchant service, but in no way connected with it, I trust that my remarks may be received in the spirit of fairness, by which they are dictated.

I propose, here, to suggest such ideas as occur to me on the subject of enlisting men, and their condition while on shore, reserving for a future occasion the subjects of their moral improvement and instruction, and their discipline and treatment ashore and afloat, embracing the collateral points of provisions and clothing.

With regard to the mode of enlisting men, a prominent evil prevails, in the correction of which, the most serious obstacles are presented. It would be found difficult, under existing circumstances, to rescue sailors from the influence and rapacity of their landlords, or as they are more usually termed crimps, and at the same time secure the services of these men, in the prompt enrolment of crews for outward bound ships; even in the Naval recruiting service, with all the checks that are systematically put in force to protect the interest of the sailor, it is not unfrequently the case that a recruit is taken to the receiving ship, after having been fleeced of the earnings of his last voyage, and brought in debt to the whole amount of his wages, advanced at the moment of enlistment.

The writer has known instances in which sailors have been discharged from ships of war, with abundance of clothing, and balances of three and four hundred dollars in their pockets, and, in four days, have presented themselves at the rendezvous for reshipment, without money or clothes, and with a bill against them equal to their three months advance. Many attempts have been made by officers, to induce these misguided men to save their wages, and they have succeeded so far as to prevail on many to deposite considerable sums in the Savings Bank; but the moment they have been separated from the influence of the officers, they have been persuaded by the harpies around them, to withdraw the whole,

and expend, in a few days, the hard earnings of as many years.

It would be easy to fill a volume with a relation of the various tricks put upon sailors to rob them of their money. Jack is aware of the character of his enemies, but heedlessly abandons himself to their wiles, spends his few days of comparative wealth in drunkenness and riot, and awakens from the debauch pennyless, and suffering all the torments of the "horrors."

Sometimes we see an old tar, who has been many a time cheated by these scoundrels, steering clear, as he imagines, of the "land sharks;" but, instead of being fleeced by his landlord, he is robbed by coachmen, and other idle rogues, who hang about the taverns and grog-shops frequented by sailors; so that, in the same short time, his money disappears.

All sailors are fond of coach-driving, and many aspire to the more adventurous exercise of riding on horseback, to them the very extreme of daring; and a few have even attained the high privilege of riding their own horse. A well known sailor, in the Navy, Jack Hamilton, often laid aside a large portion of his wages for the purchase, on his return from sea, of a horse. He imagined himself an excellent judge of horse-flesh, but like many others of the same pretensions was invariably cheated. At last, however, he secured possession of a steed which soon won all his affection. This was an old, broken-down, black coach horse, with a long tail. On this trusty animal—trusty, because he was sure never to put in bodily fear his lord and master, by any extraordinary feat of activity—Jack was wont to display himself in Broadway, about noon, making his quaint remarks upon the belles and beaus, as they drifted up and down the side-walks. But this happiness could not last long; his money was soon gone, and he must go to sea for more. He could not think, however, of permitting his favorite black to fall, again, into the hands of land lubbers. So he put him out to board, and left a half pay ticket for his support, while absent on another three years cruise.

He had forgotten, however, or perhaps never knew that the age allotted to a horse was not three-score and ten; and, as the nag was sinking into the vale of years when he became the property of his last and kindest master, he did not survive to welcome him back from sea.

Jack, on his return, gave to the memory of the old black a few sighs, and has since continued to prove the sincerity of his affection, for he has never bestrode another steed. He was his last love, and he has remained as true to him, to use his own language, "as the needle to the pole."

It is a singular trait in the character of sailors, that those, who are the most economical at sea, are proportionally improvident when they get ashore. I knew, many years ago, a fine old seaman, captain of the waist on board one of our frigates, who, when on shipboard, was a very pattern of parsimony, and by saving had accumulated a large amount of wages. His period of service happened to expire while the ship was at New-London, and he demanded and received his discharge. He went on shore with several hundred dollars, but, when there, knew not what to do. There were no villainous crimps, in that quiet place, to help him to spend his money; and he wandered half drunk about the streets, amusing, by his humorous sallies, the staid people of the town. At last he purchased an old wheel-barrow, into which he emptied the contents of the neighboring cake and candy shops, adding a goodly supply of toys and ribbons; thus charged, he perambulated the streets with a crowd of laughing children in his wake, all willing to become his customers, since he distributed his wares gratis. In trundling his barrow about, the wheel was broken, but this annoyed him but little; he soon cleared away the wreck, and substituted as a jury wheel, in its stead, a large white-oak cheese, purchased of the nearest grocer.

With this rig he continued his route. In a few days he had exhausted this source of amusement, as well as the contents of his purse, when he returned on board and resumed with cheerfulness his former occupations, commencing again to lay up money, for another cruise on shore.

Knowing, as we do, the character of these simple and

confiding men, we can easily account for the influence exercised over them, by their landlords. So long as their money holds out, they are permitted to do as they please; but the moment the last dollar is expended, they become the slaves of these ruffianly tyrants. To procure food and drink they must have money or credit; and they soon contract a debt, which can only be liquidated by the advance, usually paid, to those engaging on a new voyage. Their clothing has probably been sold or pawned for liquor, and they embark with hardly sufficient of raiment to cover their nakedness. Being debtors to the landlords, these men have an unbounded control over their movements; they can prevent their shipping, and, by combination among themselves, detain vessels for want of hands.

There has always been more or less difficulty in getting the crews on board of outward bound merchant ships. Many are put on board drunk, and incapable of performing any duty, for hours after the pilot has taken his departure. In the southern ports it is infinitely worse than at New-York. At New-Orleans, for instance, sailors, in the expectation of obtaining higher wages, generally desert from the ship in which they are engaged to perform a voyage: and such is the want of energy, in the administration of the laws in regard to seamen, that punishment is rarely inflicted upon them for the most open infractions of engagements, to which the most important of our national interests require that they should be bound, at least as rigorously as any other class of men. Ships, in this way, are left without crews; and to enable them to prosecute their voyages, others must be obtained, upon the emergency, at any cost of trouble or expense. To this end the services of the landlords, the very men who harbor the runaways, are put in requisition, and these wretches, after trumping up a bill against the deluded sailor, thrust him into his new ship drunk and half naked. Thus he changes from one ship to another, after spending a week of debauchery in some filthy place of concealment, where he contracts a debt to his seducer, which he is constrained to work out by his last contract, unless he can contrive to desert again, and pass another week of riot.

Most vessels now sailing from New-Orleans, are towed by steam-boats to the mouth of the Mississippi; and as each steamer takes several at a trip, the hour of departure is well understood, that all may be in readiness, at the appointed time. It therefore behooves the captains to have their respective crews on board. To effect this the crimps are busy in bringing forward their men; but, it often happens that some of the number have strayed from their dens of concealment and are not to be found, when the ship to which they are assigned is to depart, and it becomes necessary to have others in their place. It matters little to the landlord who he substitutes. Sometimes, when embarrassed, they will seize on any one in sailor's garb they may chance to meet; perhaps some drunken boatman of the river found asleep on the Levee. In the hurry and confusion of departure, which usually takes place in the evening, the trick is not discovered; and the poor wretch, when roused from his insensibility, finds himself at sea, perfectly unconscious of the voyage he is to make.

It is difficult to suggest any effective remedy for these and similar abuses. To improve the character of the landlords appears to be the most efficient course, and this can only be done by the merchants, by countenancing and employing the few among them who are conscientious and well-disposed, and by visiting upon the much larger portion, the vile and dishonest, the full penalties of the law, whenever these evil practices can be detected.

In a great city like New-York, whose commercial wealth is second only to that of London, there should exist a competent court, devoted exclusively to that portion of the community connected with shipping, steamers, and river craft. It should be made the province of the magistrates of this court, to have cognizance of all misdemeanors committed, either on board vessels in the stream, or at the wharves, to keep a register of all sea-faring men, and to exercise a general supervision over the conduct of landlords, crimps, sailors, and watermen. But, in default of this useful tribunal, which it is not probable will very soon be established, the merchants, as a body, might constitute an agent to look after these concerns, whose duty it

should be to superintend the enrolment and discharge of seamen; the arrival and departure of ships; the suitable supplies and stowage of provisions and water; the getting the crews on board outward bound vessels; assisting in securing those just arriving; and in a word to watch over the mutual interests of the merchants, masters and sailors.

The well-directed efforts of these agents, when put forth, in concert with those of the "Bethel and Seamen's Friend Societies," would have an extraordinary tendency to defeat the artifices of the landlords, and benefit immeasurably the moral and religious character of seamen. We should no longer hear of combinations among them for higher wages; merchants would, of their own accord, pay them with a just liberality suited to the exigencies of the times, nor would ships be detained when ready for sea, at great expense, with the frequent loss of a fair wind.

The abuses which exist, can, and ought to be corrected. Captains and mates are not so much in fault in the case, as owners and their agents. We are constantly reading in the public papers, of large donations by merchants to various objects of benevolence at home, and in distant countries, but rarely, very rarely, do we hear of any having for their chief object, the benefit of those neglected men, to whose hardy toil they are indebted for their princely fortunes. Do they fulfil to these the duties enjoined upon them, as faithful masters watchful over the moral and religious condition of their servants? Do they give proper attention to their health and comfort? The answer must be in the negative. This neglect ought not, perhaps, to be ascribed to a want of any sentiment of justice or liberality towards seamen, among ship-owners. They would, doubtless, most promptly promote any measure, that should promise benefit to the sailor. Let them understand by what means this desirable object may be attained, and they will cheerfully lend their best influence to the work. Of this we feel assured; for among them, if there be a few ready to plunder Greek or Turk, Jew or Gentile, there are others as generous and open-hearted with their wealth, as the most heedless sailor in their employ.

Y.

GUYAQUIL, IN 1833.

By a Lieutenant in the Navy.

At the period of our visit to Guyaquil, September, 1833, the State of "Ecuador," or Equator, was engaged in one of those civil contests, which are constantly vexing the republics of South America, and called by the people, "Revolutions,"—a term which, from being always applied to the endless dissensions that grow out of the ignorance and discontent of the commonalty, the usurpation and violence of the rulers, or, as is most often the case, the insubordination and misrule of the soldiery, has here lost its imposing character. It no longer necessarily implies a thorough change in the form or order of government, or a grand convulsion of society,—it may mean nothing more than the rising of a hundred troops under their captain.

It is well known that in the year 1830, the three States of Venezuela, New-Grenada, and Equator, which composed the republic of Colombia, separated by common consent, and assumed independent stations among the governments of South America, still acknowledging, however, an undefined connection.

General Flores, an officer who had served with distinguished reputation by the side of Bolivar, during "the war of Independence," was unanimously elected by the Congress, (in whom that power is vested,) to the presidency of the Equator. His administration soon rendered him unpopular with a large portion of the community. He was accused by his enemies of bringing foreign soldiers to sustain his authority, and fatten upon the public; of selling monopolies to his private advantage; and of receiving from a prostituted Congress, extraordinary powers, incompatible with the constitution. To these charges it was answered, that the soldiers were natives of Colombia, common countrymen before the separation, and the worthy veterans of the revolution; that the system of monopolies is a curse entailed upon

the country by its former masters, and universal throughout South America; that his avarice is disproved by his poverty; and lastly, that a dictatorial degree of authority (which he was never said to have employed with severity) was necessary to preserve order in a State that counted eleven rebellions in four years.

One who has witnessed the progress of events, can alone judge of their true character. We saw, however, enough to satisfy us, that in the case of this conflict, according to the usual course of violent partisanship, prejudice and passion had aggravated real evils, and created imaginary ones; had substituted calumny and misrepresentation for the truth, and the selfish spirit of party, for sincere patriotism.

The present warfare had its origin in two sources. The large mercantile community of Guyaquil had long complained of restrictions upon their commerce, which narrowed the circle of its benefits, and annihilated the equal right of free trade. To this were added other evils, such as would easily exist in a young country, with an unsettled polity, and an insufficient revenue. There was found in Guyaquil at that time (September, 1833) the precise material to lead an insurrection.

An undisciplined military force, commanded by a person of seditious and unprincipled character, and a number of retired officers of inferior grades, eager to profit by the distresses of civil war. The citizens were undoubtedly honest in their principles, but the troops had no other object in view than the chances of plunder and personal advantages offered by a state of anarchy. They were, in part, people of nameless, or dishonorable lives, who had nothing to expect from peace, and could only hope to rise in unsettled times, as the commotions of the river throw up the mud that properly adheres to the bottom. At the head of a party composed of these incongruous elements was placed M. Vincente Rocafuerte, one of the most eminent citizens of the Equator. He is a man of prepossessing appearance, and easy, gentlemanly address, who has travelled in the United States, and on the continent, and for several years represented one of the southern republics in London. He seems to have profited

by his means of becoming acquainted with the doctrines of free government, and the practice of true liberty, as they are developed in the United States and Great Britain; and his ardent wish, often expressed in conversation, was to see his own State adopt the forms, and laws, and principles of our free country. To accomplish this end, he, unfortunately, brings but a small share of practical talent—of that useful common sense, which, in the ordinary events of life, adapts the means to the end.

Possessed of fine natural abilities, and a cultivated literary taste, he is, by temperament and indulgence, visionary, speculative and enthusiastic. He revels in delightful anticipations of blessings, without considering the difficulties of the path that conducts to them, and hopes to accomplish by his single influence and exertion, that which can only be effected by time and a general effort. He is, besides, credulous, and the easy subject of imposition. Accordingly, his progress has been marked with many mistakes, and the man who would shine at the head of a well organized government, found his situation, as the leader of an insubordinate and unprincipled party, exceedingly awkward. This party retained possession of the city about nine months, when they were driven out by President Flores, and took refuge on board of the national frigate Colombia, lying in the river.

Rocafuerte, after this, fixed his head quarters at Puna, declared the city in a state of blockade, and imposed a fine on vessels bound up the river. In such a party the bonds of union were easily relaxed; the military commander, through whose combined treason and cowardice the city had been lost, had already begun to consider himself independent of M. Rocafuerte, and had refused to obey his orders. The chief and hospital at Puna were left without guard or protection, and the office of the former had degenerated into a name.

Such was the state of affairs, at the time of our arrival at Guyaquil. This is a city of old date. We speak, of course, with reference to the discovery and settlement of this part of the continent. It is occasionally mentioned in the lives of the early Bucaneers. The river was entered

by Cavendish and Dampier. The former gives an interesting account of a rich cacique of Puna—an island that bounds the Bay of Guyaquil towards the sea—who lived in a style of great magnificence, and having been baptized, wedded a Spanish lady, so regal in her notions, that she never touched her foot to the ground, holding it "too low a thing for her." His domain supplied the cruisers with provisions, and what they valued as highly, even in their greatest need, with gold and silver. Dampier projected an attack upon the city, the ultimate object of which was to establish a settlement of the Bucaneers, and work some gold mines in the vicinity, with slaves captured in the Bay; but it failed in the execution. Guyaquil was plundered as late as 1685–90, by Captain Davies, one of the last, and most distinguished of that band, who may perhaps find some excuse for their lawless life, in the piratical character of the age, and in their individual and national circumstances. In their praise it may too be said—after having accorded them the qualities of remarkable courage and enterprise—that they contributed valuable additions to the nautical and geographical knowledge of their day.

Before arriving at the Bay of Guyaquil, we had been visiting some portions of that desert tract of coast, several hundreds of miles in extent, which disfigures the northern portion of Peru. On entering the Bay, the scene was entirely changed. The place we had left exhibited no traces of the vegetable productions of nature; but here, the overgrown soil teemed with the rankest luxuriance. The lofty mountains of Quenca, their isolated summits darkening amidst the clouds, arrested the view to the eastward; in the opposite direction, the prospect was relieved and diversified by the graceful undulations of the island of Puna.

The river, from Puna to the city, varies in breadth from half a mile to a mile. The intermediate country is chiefly a flat, impervious morass, crowded with trees that wall in the river, and form a beautiful vista, though they obstruct the view on each side. There was something familiar and agreeable, in gliding along on the smooth and rapid stream with a fair breeze, and the land so near us on both hands.

It was like transporting the ship out of her native element, into the country. Propelled by wind and tide, her swift motion realized the wishes of impatience. The very nearness of the landmarks gave to the ship the appearance of a fairy speed; and curiosity had hardly time to dwell upon the changes in prospect, that constantly presented themselves to the eye.

The city extends about a mile along the left bank of the river, at the distance of between thirty-five and forty miles from its mouth. It terminates at the foot of a low hill, that rises conspicuously above the level plain, and clothed with a thick wood, possesses as much beauty as distinction. There is nothing in the external appearance of the city, to command the admiration of the stranger. The houses are most remarkable for the wide balconies that surround them, at each story, and form a convenient roof to shelter the foot passenger from a vertical sun. The streets are rectangular, and, here and there, badly paved; no churches, or public buildings, of any sort, attract attention. But of all places on the coast, Guyaquil is the most highly praised for its hospitality, and the laughter-loving, merry-making disposition of its women. Every successive vessel that has touched at this port has gone away delighted. Music and the dance constitute the most vivid recollections of their stay. To us was presented a very different scene. The closed and deserted houses; the lonely streets overgrown with grass; the sparse population; the gaunt figures and sallow complexions of those who were visible, all reminded us that we had come to the house of mourning, rather than to that of feasting and joy.

These were the results of a violent epidemic that had just spent its fury. During the rainy season, which continues three months, this climate is subject to fevers; and the common disease had, on this occasion, assumed a severity of character that amounted to a plague. Civil war added its horrors. Four thousand persons are computed to have died, and the population of the city, at the time, could not have exceeded ten thousand.

The period of our acquaintance was unfavorable to

a display of the usual vivacity of society, but not for the observance of its better traits, for we noticed, particularly, in the ladies a quiet, subdued gentleness, which is known to be an "excellent thing in woman." Almost every where we met the badges of mourning. A settled sadness spoke the loss of some near friend, or told the history of personal sufferings. All the animation and mirth, all the loud and noisy pleasure, for which the ladies of Guyaquil are somewhat distinguished in their happier hours, had fled. With our limited means of acquaintance, however, we looked upon them as the best educated and most intelligent portion of the community, and, certainly, they are endowed with a large share of personal beauty.

There is a great deal of beautiful scenery in the neighborhood of Guyaquil. The banks of the river, the view from the hill, and the environs present every variety of landscape. But of all that we saw, it is our greatest boast to have looked upon the lofty mountain of Chimborazo,—about one hundred and twenty miles from Guyaquil, and forty to the southward and eastward of Quito. We were often indulged with the sight of his bold head, towering sublimely in the heavens, and reflecting the rosy light of a western sun.

The haughty peaks that encircle him, sink into insignificance, while he stands uncovered in the midst. Four or five thousand feet are clothed in the livery of eternal winter—a solitude of everlasting snow and ice—a trackless desert, where the ameliorating influence of man can never reach. The appearance of this

"Kingly spirit, throned among the clouds,"

affects the soul with the strongest impressions of sublimity. Its height is so far above our ordinary conceptions, and its lonely majesty so removed from our sympathy, that sentiments of awe and wonder never cease in gazing upon it. Whilst the mind is raised by the contemplation of such a subject, it loses the power of expression. There exists an undefined thought of something beyond and above; the heart is filled with feelings of dependence and veneration: but the revela-

tion is rarely so clear as to be comprehended by the power of words.

On this mountain, the travelers Humboldt and Bonpland attained the height of nineteen thousand four hundred feet, the highest spot ever printed with human footsteps: an elevation but little lower than the loftiest flight of the Condor, and never before reached by any man, except by M. Lussac, who in 1804, ascended in a balloon from Paris, 21,000 feet. "They found the air intensely cold and piercing, and owing to its extreme severity, respiration was difficult." The blood oozed from their gums, eyes, and lips.

Before we left Guyaquil, the sun had returned to dry up the noxious exhalations, and gladden the city with his presence. The virulence of the disease had entirely subsided. The arrival of a few American vessels had restored commerce; and loads of cocoa, the staple export, came down the river. But more than all, a treaty had been ratified between the belligerent parties. We were glad to observe, that the return of peace and good weather had renewed, in a measure, the life and bustle of the city. Families who had retired to escape the two-fold horrors of war and pestilence, came back to their homes. The inhabitants recovered their good looks, and society its animation. A gay couple were occasionally seen to glide by a window in the intoxicating whirl of the waltz; and the vociferous "ola" of the "*Samba Zueca*," was heard to die away on the midnight air, and return from the echoes around.

The political excitement that prevailed at Guyaquil, during our stay, fully displayed the character of the people. The lower classes were revolutionists to a man. Such people are easily persuaded that taxes are unjust, and they were also attached to M. Rocafuerte, because he was a fellow citizen, whereas, President Flores was a native of Venezuela.

The vertical sun, to which they are "neighbors and near-bred," has bestowed upon them strong passions, and a mercurial excitability of temperament, that hastens them always to extremes. With them, impulse takes the place of reason, and passion of principle. They love and hate with equal

ardor and misconception. But the besetting sin of their political character is ignorance.

A very general want of education renders them utterly unfit for their duties, as citizens of a republic. This has led some of our countrymen to remark upon the South Americans generally, in a spirit of superciliousness and fault-finding.

It is natural that we, who possess a system of government so liberal and perfectly established, should regard with doubt and suspicion, the crude republics of South America, distracted as they have been, by daily revolutions and dissensions.

But, we must remember, that the settlement of our country is the date of its liberty—must remember the admirable adaptation of the British colonies for a democracy, and the singular virtue of those who attained, by long experience, the wisdom that guided the revolution, and directed its spirit to the true end. We must not forget, too, the character of those who, actuated by no better motive than the love of gain, first wrested, under circumstances of peculiar barbarity, this fair domain from the persecuted and enslaved Southern Indian.

We must recollect that the inhabitants of South America —where printing-presses were unknown, and colleges were only instituted to teach the divine right of kings, and the religious supremacy of the Pope; where the mind was sunk in ignorance, and the very thoughts were kept under by the most selfish, cruel, and despotic control on the face of the earth; where commerce, manufactures, learning, and the arts, were restricted to the private emolument of monopolies; and the whole condition of society lay under the jealous inspection of foreigners, who would have coined the very hearts of the people into gold—were for centuries debased by the double policy of church and state.

We must recollect that from such a condition, the people were launched at once into the unrestrained license of liberty; that from being slaves, they became masters; from the creatures of despotism, they were changed at once into the independent and responsible citizens of a free country. Brought up in the tamest submission to the will of others, they

were suddenly required to make laws for themselves; and being supremely ignorant, they were called upon to exercise the art of government.

Some time must necessarily be required to calm the intoxication of liberty, to restrain individual ambition, to diffuse education—the only safeguard of free institutions—and point out the road to that wealth and distinction which appears to be their natural inheritance.

We think it may be truly said, that if there is any one prevailing sentiment universally disseminated throughout the republics of South America, it is a regard for a popular form of government. This is never lost sight of. It is a sentiment so thoroughly inculcated, that it may be said to constitute, as with us, a characteristic feature of their society. It is read in the constitutions, and heard in the ball-room; it is the war-cry and watch-word of every successive party that rolls on, like the waves of the sea, in endless commotion. The rising generation are profiting, by the advantages of an education unknown to those that preceded them, and the benefits thereof are every day more highly appreciated. Many of the higher classes educate their children abroad, particularly in the United States. Such examples must be most extensive and profitable in their influence.

Who can calculate the consequences of a canal across the Isthmus, of an increasing commerce—that grand engine of civilization—and of the gradual introduction of foreign literature? We believe that the cloud of ignorance and error that has already began to

"Turn forth its silver lining on the night,"

will pass away entirely—we believe in the irresistible progress of truth and liberty.

HISTORY OF NAVIGATION.

By E. C. Ward, Esq. Professor of Mathematics in the U. S. Navy.

[Concluded.]

As altitudes of the sun are taken at sea, by observing his elevation, or altitude, above the visible horizon, to obtain from thence the sun's true altitude with correctness, Wright thought it necessary, that the dip of the horizon below the observer's eye, should be brought into account, which cannot be calculated without knowing the magnitude of the earth. Hence he was induced to propose the different methods for finding this; but complains that the most effectual was not in his power to execute; and, therefore, contented himself with a rude attempt, in some measure sufficient for his purpose. The dimensions of the earth deduced by him, corresponded so well with the usual divisions of the log-line, that, as he did not write an express treatise on navigation, but only for correcting such errors as prevailed in general pratice, the log-line did not come under his notice.

Mr. Richard Norwood, however, put in execution the method recommended by Mr. Wright as the most perfect for measuring the magnitude of the earth, with the true length of the degrees of a great circle upon it; and, in 1635, he actually measured the distance between London and York; from which, and the summer solstitial altitudes of the sun, observed on the meridian at both places, he found a degree, on a great circle of the earth, to contain 367,196 English feet, equal to 57,300 French fathoms or toises; which is very exact, as appears from many measures that have been made since that time. Mr. Norwood gave a full account of this, in his treatise called the *Seaman's Practice*, published in 1637, in which he shows the reason why Snell had failed in his attempt. He also points out the various uses of his discovery, particularly for correcting the errors,

hitherto committed in the divisions of the log-line. These necessary amendments, however, were little attended to by navigators, whose obstinacy, in adhering to established errors, has been complained of by the best writers on navigation; but, at length, they found their way into practice, and few navigators of reputation now use the old measure of forty two feet to a knot. In that treatise, Mr. Norwood also describes his own excellent method of setting down and perfecting a sea-reckoning, by using a traverse table; which method he had followed and taught for many years. He also shows how to rectify the course by the variation of the compass; also how to discover currents, and to make proper allowance for them. This treatise, and one on trigonometry, were frequently reprinted, as the principal books used in teaching scientifically the art of navigation.

No alterations were made in the "Seaman's Practice" till the 12th edition, in 1676, when the following paragraph was inserted in a smaller character: "About 1672, M. Picart published an account in French, concerning the measure of the earth, a brief account of which may be seen in the *Philos. Trans.* No. 112; wherein he concludes one degree to contain 365,184 English feet, nearly agreeing with Mr. Norwood's experiment;" and this advertisement is continued, in the subsequent editions, as late as 1732. About 1645, Mr. Bond published, in Norwood's Epitome, a very great improvement in Wright's method, by a property in his meridian line, whereby its divisions are more scientifically assigned, than the author himself was able to effect; which was from this theorem, that these divisions are analogous to the excesses of the logarithmic tangents of half the respective latitudes, augmented by 45° above the logarithm of the radius. This he afterwards explained more fully, in the edition of Gunter's works, printed in 1653; where, after observing that the logarithmic tangents, from 45° upwards, increase in the same manner that the secants added together do; if every half degree be accounted as a whole degree of Mercator's meridional line; his rule for computing the meridional parts belonging to any two latitudes, supposed on the same side of the equator, is as follows: "Take the

logarithmic tangent, rejecting the radius of half each latitude, augmented by 45° ; divide the difference of those numbers by the logarithmic tangent of 5° 30′, the radius being likewise rejected ; and the quotient will be the meridional parts required, expressed in degrees." This rule is the immediate consequence of the general theorem, that the degrees of latitude bear to one degree (or 60 minutes which in Wright's table stand for the meridional parts of one degree) the same proportion, as the logarithmic tangent of half any latitude augmented by 45°, and the radius neglected to the like tangent of half a degree, augmented by 45°, with the radius also rejected.

The demonstration of this general theorem was still wanting, till supplied by Mr. James Gregory of Aberdeen, in his *Exercitationes Geometricæ*, printed at London in 1668; and afterwards more concisely demonstrated, together with a scientific determination of the divisor, by Dr. Halley, in the *Philos. Trans.* for 1695, from the consideration of the spirals into which the rhumbs are transformed, in the stereographic projection of the sphere upon the plane of the equinoctial; and which is rendered still more simple by Mr. Roger Cotes, in his *Logometeria*, first published in the *Philos. Trans.* for 1714. It is added in Gunter's book, that if one-twentieth of this division, which does not sensibly differ from the logarithmic tangent of 45° 1′ 30″ less radius, be used, the quotient will exhibit the meridional parts expressed in leagues ; and this is the divisor mentioned in Norwood's Epitome. In the same manner the meridional parts will be found in minutes, if the same logarithmic tangent of 45° 1′ 30″ less radius be taken, that is, the number used by others being 12,633, when the logarithmic tables consist of eight places of figures.

Mr. Bond, in his *Seaman's Kalander*, declared that he had discovered the longitude by having found out the true theory of the magnetic variation ; and, to gain credit for his assertion, he foretold, that in London, in 1657, there would be no variation of the compass, and from that time it would gradually increase the other way ; which happened accordingly. He also published a table of the variation, in the

Philos. Trans. for forty-nine years to come. He thus acquired such reputation, that his treatise, entitled *The Longitude Found*, was published in 1676, by the special command of Charles II., and approved by many celebrated mathematicians.

It was not long, however, before it met with opposition; and, in 1678, another treatise, entitled *The Longitude not Found*, made its appearance; and as Mr. Bond's hypothesis did not, in any manner, answer the author's sanguine expectations, the affair was undertaken by Dr. Halley. The result of his speculations was, that the magnetic needle is influenced by four poles; but this wonderful phenomenon seems, hitherto, to have eluded all our researches. In 1700, Dr. Halley published a general map, with curve lines expressing the paths where the magnetic needle had the same variation; which was received with universal applause. But as the positions of these curves vary, from time to time, they should frequently be corrected by skilful persons; which was accordingly done in 1744 and 1756, by Mr. William Mountaine and Mr. James Dodson, F. R. S.

After the true principles of the art were settled by Wright, Bond and Norwood, the authors on navigation became so numerous, that it would be a difficult matter to enumerate them; and every thing relative to it was settled with an accuracy, not only unknown to former ages, but which would have been reckoned utterly impossible. The earth being found to be a spheroid, and not a perfect sphere, with the shortest diameter passing through the poles, a tract was published in 1741, by the Rev. Dr. Patrick Murdoch, wherein he accomodated Wright's sailing to such a figure: and Mr. Colin MacLaurin, the same year, in the *Philos. Trans.* gave a rule for determining the meridional parts of a spheroid; which is treated of more fully in his treatise of *Fluxions*, printed at Edinburgh in 1742.

Among the later discoveries in this science, that of finding the longitude at sea, by *Lunar Observations*, and by *Time-keepers*, is the principal. The science is indebted to Dr. Maskelyne for putting the first of these methods into practice, as well as for many other improvements; and also to Mr.

Harrison for the remarkable discovery of the longitude by the second method. The subject of nautical science has been so much canvassed and studied, by men of learning and ingenuity, in all nations, that there seems to be little room for further improvements; and the art of navigation appears to be nearly brought to the greatest degree of perfection of which it is capable.

A TURKISH BREAKFAST, AT SMYRNA.

From the Journal of an Officer of the American Squadron, in the Mediterranean, in 1826.

YESTERDAY was spent by us, at the country seat of Suliman Aga, a Turk of high rank and immense wealth, with whom we had been invited to breakfast, in return to a handsome entertainment given to him by the Commodore.

We left the ship, fourteen in number, at nine o'clock in the morning, and proceeded to the landing, in front of the residence of the American Consul, on the Marino. Here a handsome Barbary courser, splendidly caparisoned, awaited each of our party—every horse having a footman, or groom, to run by the side, or at the head, of his respective animal. The saddles were covered with scarlet silk velvet, embroidered with gold; the housings being of the same material and embroidery, and more rich than any I had ever before seen. A captain, or master of the horse, superintended the whole. This officer was armed, as was likewise the case with each of the attendants, or running grooms, with a pair of large, silver-mounted pistols and a yatagan. A guard of the Pacha kept the wondering and gaping multitude at a respectful distance; and every thing, in the arrangements, was in the true style of Eastern magnificence, proclaiming the rank, luxury, and wealth of the dignitary whose guests we were about to become.

After landing, and being mounted and ready to move, we were marshalled by the master of the horse. He him-

self led the van, followed by the two dragomen of the American Consulate—such being the established etiquette—after whom came our party; the Commodore in front, then the Consul, the captains, and other officers, closing with the guard; all in single file, as a soldier would say, but as we would express it "in a line a-head:" the streets being too narrow to admit two persons on horseback abreast. The inhabitants of parts of the town through which we were thus paraded—among whom we saw some very beautiful women—crowded their doors and windows to gaze at the cavalcade, as at a "*grande spectacle.*"

After numerous windings through a succession of streets, we cleared the city, and soon gaining the open country, our master of the horse, with others who had joined him, went through the Mameluke exercises of charging at full speed, firing, wheeling, and retiring. This was succeeded by an exhibition of the skill of Turkish swordsmen on foot, by the roadside as we advanced, till after a very warm ride of three miles, thus amused, we arrived at the residence of the Aga, and dismounted at a stepping stone in an outer court, the stirrup being held by an attendant whose peculiar office it is, while the bridle is commited to the running footman.

Suliman Aga, attended by his whole household of men, —some fifty in number, arrayed in their most splendid attire—received us in person, at the entrance, amidst the music of a Turkish band. In the centre of the establishment there is a basin of water, some twenty feet square and five feet deep, supplied by a fountain in the middle. A light, open colonnade surrounds this, from which a room, some twenty five by twenty feet in dimensions, opens on each side. The ceilings of these apartments are lofty, and from each was suspended a rich chandelier of chrystal. The walls and ceilings were painted, in water colors, with much taste. The floors were of white marble, with a slight inclination towards the basin and fountain; and the two sides and farther end of each room was furnished with a divan, or cushioned seat, extending the whole length of the walls, with luxurious cushions at the back to lounge upon.

Immediately after being seated, costly pipes were pre-

sented to each person. There is an attendant to each pipe, whose business it is to keep it replenished and lighted. The tubes of the pipes are several feet long, and the attendant, in presenting one to you, measures with his eye the distance from you on the floor, at which to place the bowl of the pipe, then handing the tube to you, he kneels and places under the bowl a small, highly polished waiter of brass. In taking the pipe from you, he kneels and takes up the waiter and pipe together. Having puffed at the pipes for a while, coffee and iced lemonade were introduced, and being thus refreshed, we were led into a berceau or arbor, covered with vines and laden with fruit, extending from the apartments already described, to a second range in a neat building with closely latticed windows—the residence of the ladies of the family. Of these, however, we could not catch even a glimpse, though, doubtless, led that way ourselves principally to be seen by them, through their lattices. It was a disappointment to us, especially, while picturing them in our imagination, as lovely as so many houris. On our return to the first apartments, we were again saluted with music, and regaled with coffee, lemonade and pipes.

At half past one o'clock—our party having been divided into two sets, one for each room—we took our seats for the feast; the company, honored with the presence of our host, consisting of the Commodore, Consul, and Captains, in all nine persons. The dinner table for these was a small, four-legged pine table of common workmanship, placed with the top on the floor and the legs upward, and surmounted by a large and highly polished waiter of brass, about twelve feet in circumference. On this was a roll of bread, cut into small squares, but not separated, with two spoons for each person, one of wood, and the other of tortoise shell and pearl—the use of silver at meals by the Turks, being prohibited by their religion—with plates of pickles and small dishes of mint sauce. In the centre was a small circular cushion covered with black leather.

As soon as we were all seated, around this waiter-table, the attendants spread over our lap, a cloth of crimson silk and gold, extending to each person. Over the right shoulder of

each was then thrown a thin napkin, with the borders richly embroidered in gold—and which I could not help hoping it might be the fashion for the guests to keep—and another of white placed in our hands; the first being to protect our drapery, the second to wipe our lips, and the third for the fingers—a very necessary provision, as the sequel will show.

Thus arranged and furnished, the entertainment was brought in. We first partook of fruit, after which came the first dish of forty courses—each dish constituting a course, and each course being served separately—the courses being composed alternately of soup, roast or stewed meats, and sweetmeats, jellies, creams, cakes, &c. &c. The soups were eaten with the wooden spoons; the creams, jellies, &c., with those of tortoise shell, and the meats with our fingers—all dipping our spoons, and thrusting our fingers, into the same bowl or dish. Claret wine and lemonade were handed round during the feast.

To describe, or even enumerate, the various dishes, many of which I had never before seen or heard of, is utterly out of my power. Among others, a roasted lamb, stuffed with rice, raisins, and a small nut, produced by a species of the pine, was found exceedingly palateable, and very rich. It was dissected, a la Turk, with our fingers. There was a custard, or "creme a la Francaise," too, with fish in it—jellies, the best I ever ate, having fish swimming in water beneath them, &c. &c, ; and as a last course, a bowl of iced sherbet!

The waiter and table being removed, basins with pitchers of water, and soap to wash our lips and hands—by this time a highly necessary operation—were brought in, followed by coffee and pipes, as we reclined onthe divans, resting from our labors; for such, the necessity of partaking of forty dishes may well be termed, especially under the alarm of not knowing when the number was to end.

While puffing at our pipes, sword and gymnastic exercises were exhibited by two wrestlers of most athletic forms, oiled and naked to the waist; after which, we were entertained with a long, and, no doubt, fine piece of music, on two violins of fourteen strings each, a guitar, and two flutes; one of

which was played by a Turkish priest. A profusion of the greatest variety and finest ices I ever saw or tasted followed this, when we took a turn through the grounds, abounding with the choicest fruits—pears, apples, plums, peaches, apricots, pomegranates, grapes of several varieties, nuts, melons, &c. &c.

During the afternoon coffee, ices, lemonade, pipes and music were again enjoyed, till, at five o'clock, we took our leave, mounted our coursers, and returned to Smyrna in the same order, with the same sports, and attracting the same attention, as when issuing from the town, for the excursion in the morning.

REMARKS ON QUARANTINE SYSTEMS.

By Usher Parsons, M. D., formerly Surgeon U. S. Navy.

THE commercial welfare and prosperity of maritime cities, as well as the health and convenience of crews and passengers who arrive at them, are involved in the subject of quarantine restrictions, and impart to it greater interest, than any other question of medical police, that can offer itself for discussion. It is a subject, too, particularly suited to the pages of the Naval Magazine.

The term quarantine is used to express detention, for any specified number of days, of persons, ships, goods, &c., supposed to be capable of propagating any infectious or contagious disease. The number *forty*, implied in the derivation of the word, probably originated in a superstitious notion of the dark ages, that this number of days, passed in seclusion, purified the body of pestilential taint, as forty days of Lent is supposed to do the soul of its moral pollutions: and as Lent claims kindred with forty days fasting in the wilderness, and this probably with the forty years march of Israel to the land of promise, so the term in question can certainly boast of a remote ancestry. But, that forty days marks a crisis, or defines a boundary to the existence of contagion, in

persons or vessels, is a doctrine which neither experience proves, nor common sense any longer tolerates.

Quarantines are the offspring of a belief in contagion, as a cause of some epidemics. The origin of such belief is traced by some to the year 1545, and is attributed to a political intrigue said to have been practised by Pope Paul III., at the council of Trent. The story is, that desirous of removing the assembled conclave from that city to Bologna, in Italy, where his supremacy was absolute, this pontiff commissioned one of his cardinals to propagate the report that a contagious fever prevailed in the former place, which he accomplished through the instrumentality and connivance of an eminent physician named Fracastorius. But although such a *pious fraud* is recorded in history, and has been often recited by eminent writers both in Europe and America, yet it is demonstrable that a belief in the existence of contagion is of a much earlier date. Dr. Pariset, of France, has faithfully investigated this subject, and cites numerous extracts from Greek and Roman writings, which show that some pestilential diseases were regarded as contagious in those nations. Authentic facts prove, also, that quarantine laws existed in Italy, generally, as early as 1484; and in Venice prior to 1448, or nearly a century prior to the council of Trent.

The northern nations of Europe feeling less apprehensive of plague, were slow in imposing commercial restrictions for its prevention. England deferred them till after the plague of Marseilles, in 1720, and Holland and Denmark to a still later period; and neither of those nations have enforced them with such rigor as is done in the south of Europe, nearer the seat of the plague.

In the American colonies, sanitary laws were enacted as early as 1700, providing against the admission of vessels from sickly ports nearer than within one mile of wharves, without a bill of health; and against the landing of any person without permission, under a penalty of one hundred pounds. As early as 1742, a Lazaretto was established below Philadelphia, and similar ones were erected in other cities at about the same period.

Quarantine restrictions vary in their rigor and duration in

different countries, proportionately in some degree to their proximity to the sources of pestilential diseases. In the Mediterranean ports of Spain, France and Italy, they are nearly uniform, and more severe than elsewhere. This uniformity is necessary, in order to preserve free intercourse between such neighboring ports. As a sample of them, I will describe the laws of Marseilles, which will serve to show their embarrassing effect upon commerce. I shall then advert to those of Great Britain, and lastly to those of the United States.

No ship can be admitted into Marseilles without permission from the health officer. If it comes from the seaports of the Levant, the coast of Dalmatia or Barbary, or directly from the coast of America, the sailors, passengers and cargo must perform quarantine either on board or at the Lazaretto. This varies in length, and consists of the following kinds:—those of *clean bill*, *affected bill*, *suspected bill*, *foul bill*, *particular quarantine*, and *quarantine of observation*. By *clean bill* is understood, that which states that there is no sickness on board, and no suspicion of there having been any plague or contagious disease. The first, or clean bills, however, which are brought after the cessation of the plague in a foreign port, are regarded as *foul*, unless twenty days have elapsed after they commenced drawing up such bills. By *affected bill*, that which states no sickness or suspicion of contagious diseases in the port, but that vessels had arrived in said port from some other infected port, although their crews are in good health. By *suspected bill*, one which states that the port whence the vessel comes, is affected with a disease of a malignant character, which spreads in families, and is suspected to be pestilential; or if there has been a communication held with a caravan, or with merchandise that has come from a place infected with a contagious disease. By *foul bill*, is one which states, that the vessel has come from a country where a pestilential disease prevails, or has goods on board from such a place. All ships which left after an interval of sixty days from the cessation of the malady, are subjected to the form and rigor of *foul bill*;—after an interval of more than sixty and less than seventy days, to those of *suspected bills*; from seventy to eighty days to those of

affected bills; lastly, after more than eighty days have elapsed, they are subjected to the rules of *clean bills*. *Particular quarantine* is precautionary, and is applied to ships coming from Constantinople, from the Black Sea, and Gibraltar, on account of the frequency of the plague in the Levant and in Barbary; also, to vessels from Vera Cruz, Havana, and to other equatorial regions, where yellow fever is frequently occurring. Lastly, *quarantine of observation*, applies to vessels which have been visited by the corsairs of Barbary, or even by vessels of war, and privateers of European nations at war.

The number of days varies according to the supposed degree of susceptibility of the cargo, provisions, &c., to receive and retain contagion, a table of which is drawn up by the board of health. The quarantine of cargoes coming from Dalmatia and Barbary, is 18, 20, 25, or 30 days, according to the kind of bills, provided they are *non-susceptible*, and 20, 25, or 30, if the cargo be of a suspicious kind. For ships coming from plague regions, the quarantine is 25, 30, 35, or 40 days with a *clean bill*, and from 30 to 60 days, if the bill be *affected*, *suspected*, or *foul*. It is augmented if a great mortality prevails at the place of departure. *Quarantine of observation* is from 18 to 30 days, and particular quarantine 12 days.

Passengers may remain in ships anchored at the quarantine ground, and be supplied with provisions by guard boats; or they may pass their time on shore in the Lazaretto. In the latter case they are subjected to three fumigations, together with their effects. Those who arrive with perfectly *clean bills* are allowed to see their friends through iron gratings. Those with *foul* bills are confined to an apartment for fifteen days; and if any person belonging to their ship dies of any disease, they are from that day to recommence the quarantine.

The quarantine of merchandise is, in all cases, ten days longer than that of persons, commencing it after, from ten to twenty days airing, according to its susceptibility to contagion, and after it has been fumigated.

By a late ordinance of Louis Phillipe, dated April, 1835,

quarantine upon our merchant vessels is mitigated as follows:—

"Article I. Vessels coming from the United States of America with clean bills of health, shall not in future be subject to quarantine of observation."

"Article II. Bales of cotton coming from the United States with clean bills of health, shall not in future be opened or sent to the Lazaretto."

The Quarantine Laws of England relate chiefly to vessels coming from the Levant, and to the prevention of plague. Commanders of ships having any such disease on board, are directed, if within the straits of Gibraltar, to proceed to some Lazaretto in the Mediterranean, and if without the straits, to proceed to the Scilly Isles.

There are six kinds of quarantine:

1. That performed at the Scilly Isles, on account of actual pestilence, or suspected sickness, 44 days; and which is to recommence in the same ship on the day any person dies on board. This kind is rarely, if ever, enforced.

2. When there is a *clean bill* of health, 15 days. This is imposed on account of danger from infected goods.

3. That performed at Stangate Creek, 34 days; and is applied to vessels with suspected bills,—the port from which the vessel sailed being suspected of infection, although no sickness actually exists on board.

4. Where the vessel brings a *foul bill*, 44 days at Stangate Creek. The vessel in this case comes from a port known to be infected. This is the most frequent of all quarantines.

5. Goods enumerated in first and second class, (supposed to be most capable of retaining the poison,) and coming in ships that have already performed quarantine at any of the Lazarettos in the Mediterranean, are detained 15 days in addition to the above.

6. Turkey goods coming from any other European port without the straits, or from America, where there is not a regular establishment for performing quarantine, are treated as if coming directly from the Mediterranean. This last seems to be merely a politico-commercial regulation.

Quarantine Laws of the United States originate from the government of each state, and from city authorities; and consequently present no uniformity between different cities. In 1832, when it was feared that the cholera would reach our shores, the attention of Congress was called to national measures of defence. The committee to whom the subject was referred, after corresponding with different city authorities, introduced a bill, the tenor of which was, to interfere in no degree with the quarantine laws of any city, but merely to assist in the enforcement of *all* sanitary laws. This bill passed both houses, and contained the following provisions:

1. Every vessel arriving at any port in the United States, shall be subject to the quarantine regulations of the port.

2. It shall be the duty of all officers of Revenue Cutters to assist in carrying into effect the quarantine regulations of the several ports, under the direction of the Secretary of the Treasury.

3. It is the duty of all licensed pilots to place in the hands of the commanders of all vessels they may board, copies of the quarantine regulations of the port, and of this act.

4. Any person violating the provisions of this act, shall be liable to a fine not exceeding $1,000, one half to the United States, the other half to the informer.

The authority for regulating quarantine in our commercial cities, is vested in a board of health. In Boston, the corporation of the city act as a Board of Health. In New-York, it consists of such persons as the Mayor and councils shall appoint. In Philadelphia, it is composed of twelve persons; six of them appointed by the city councils, and six by commissioners of the neighboring precincts. In Baltimore, the board consists of three commissioners and a consulting physician. The Charleston board is composed of thirteen commissioners appointed by the city council.

As it would occupy too much space to insert here the quarantine laws of all, or even more than one, of our large cities, I shall select those of the largest city only. By the *New-York* law, every vessel arriving from any port, island or other place, in Asia, Africa, the Mediterranean, America lying south of Georgia, or from any of the West India,

Bermuda, or Western Islands, and all vessels from foreign ports having on board forty or more passengers, and *all* on board which any person shall have been sick, or died while at a foreign port, or on the homeward passage, may be quarantined, if arriving between the first day of April and the first day of November in any year; and if arriving from the West Indies, or from America south of the equator, or from any port or place in the continent of Africa, or islands near the same, between the thirty-first of May and first of October, shall be detained at least two days at quarantine, or as much longer as the health officer shall deem necessary, and the vessel ventilated, cleansed, &c. After the officer shall permit her to depart she is not to come within three hundred yards of the city, until she shall have been again inspected by a person appointed for that purpose by the Board of Health. The law also enacts, that every vessel arriving in the port of New-York, from any port, island, or place, in the Mediterranean, in Asia, in America south of the equator, or from Madeira, Canary, Cape de Verd, Western, Bermuda, or Bahama islands, between the thirty-first of May and first of October, shall remain two days at quarantine, and be cleansed and purified, and when released shall, as in the preceeding instance, not approach the city within three hundred yards, except specially permitted; all vessels south of Henlopen are also subject to quarantine, if arriving between the 31st day of May and 10th of October; and all vessels *north* of thence, provided they have forty or more passengers, or with a less number, provided any case of sickness shall have occurred on board; all vessels coming from a port in which yellow fever existed at the time of their departure, or on board of which any person has been sick, or died of this disease, if arriving between the 31st of May and 1st of October, are to be detained thirty days, and twenty days after the discharge of her cargo, the cargo to be ventilated and cleansed, and then on an examination by the agents of the board, may be landed.* The crew and passengers

* The following modifications in the quarantine laws have occurred since this article was prepared, by the following act passed on the 2d of May 1836.

must also remain twenty days from their arrival, or fifteen after the last sickness or death on board. The restriction on passengers is also extended to all persons from other ports, or places in the United States, or South America and West Indies, south of St. Mary's in Georgia, who are not permitted to enter the city under twenty days from the time they sailed. Whenever the governor of the state, the mayor of the city, or recorder, shall receive information of the prevalence of a contagious fever at any place, he shall issue his proclamation, prohibiting vessels from coming from such a place, and also cut off the intercourse by land.

The foregoing sketch of quarantine laws in a few of the cities in the commercial world, are fair samples of those that exist elsewhere; and furnish data for estimating their expensive and embarrassing effect upon commerce. Those

AN ACT *to amend Title Second, Chapter Fourteen, Part First of the Revised Statutes, relating to the Quarantine Regulations of the Port of New-York.* Passed May 2, 1836.

The People of the State of New-York, represented in Senate and Assembly, do enact as follows:

§ 1. All articles arriving in vessels subject to Quarantine, whose exportation by sea, or transportation up in the North or East rivers, and which may, without danger to the public health, be shipped from the wharves of the city of New-York may by permission of the board of health, or the mayor and commissioners of health, be brought to the city of New-York for the above object.

§ 2. No vessel subject to a regular quarantine of two days, unless she shall have sailed from some port in the West Indies, or in America south of Louisiana, and north of the equator, or from some port or place in the United States south of Georgia, before the first day of June in the year of her arrival, shall, when released from quarantine, approach within three hundred yards of that part of the island of New-York which lies southward of Bank-street, on the North river and of Eighth-street on the East river, until after the first day of October in the year of her arrival, unless by virtue of a special permission to be granted by the board of health, or the mayor and commissioners of health; which permission shall not extend to embrace any time between the first day of June and the first day of September, in the year of her arrival, unless under the circumstances mentioned in the following section.

§ 3. If such vessel shall have arrived from any place in the Mediterranean, in Asia, in America south of the equator, or from the Madeira, Canary, Cape de Verd, Western, Bermuda or Bahama Islands, the

of Marseilles, and its neighboring ports, are the most rigorous and oppressive, on account of proximity to the source of plague, and its occasionally devastating visits. There seem to be unquestionable proofs of its introduction in ships, both before and since those restrictions were imposed, but more rarely of late years. This is probably attributable as much to improvement in local and personal cleanliness, and in the comforts of life enjoyed by the people, as to quarantine laws, though the latter have, no doubt, had some preventive effects.

But that the existing laws for preventing plague are susceptible of great amelioration cannot for a moment be questioned. It must ever appear absurd to Americans, and is beginning to be thought so by physicians in the cities referred to, that danger can attend the landing of a healthy person, from a healthy ship, arriving from a healthy port in the Levant, in a healthy season of the year, after divesting

mayor and commissioners of health may, by special permission in writing, direct her to be hauled to a wharf south of the bounds so prescribed, and in their discretion, may first order her cargo, or any portion thereof, to be unloaded, subject to their orders and regulations.

§ 4. No vessel subject to a regular quarantine of thirty days, when permitted to leave the quarantine ground, shall approach within three hundred yards of the city of New-York, between the first day of June and the first day of October in the year of her arrival, unless permitted by the board of health, or the mayor and commissioners of health; which permission shall not be granted except as prescribed in the second section of this act.

§ 5. All vessels wholly loaded with salt, being healthy and from healthy ports, may be permitted to discharge their cargoes at any wharf to be designated by the board of health, or by the mayor and commissioners of health: but immediately upon being discharged, such vessels shall be subject to all the restrictions imposed by title second, chapter fourteenth, part first of the revised statutes; and all the provisions of said title and chapter inconsistent with the provisions of this act, are hereby repealed.

State of New-York, Secretary's Office.

I have compared the preceding with an original act of the Legislature of this State, on file in this office, and do certify that the same is a correct transcript therefrom, and of the whole of said original.

ARCH'D CAMPBELL, Dep. Sec.

Albany, May 3, 1836.

his body of clothing brought in the ship, and after cleaning and reinvesting it with new apparel; and yet such an individual is incarcerated at a lazaretto, some twenty or more days, and subjected to sundry fumigations and ablutions.

I have assumed it as a fact, that plague is contagious; and this will not be doubted by most of my readers, although many authors have, in their closets, theorized themselves into an opposite belief. And it must be conceded in favor of their opinion, that it does differ from other febrile contagious diseases in many of its laws; such as liability of a person to a second attack—its rise, progress, and termination, being influenced by seasons—and its preference of certain localities. Yet those who have observed it closely for a succession of years, are, with few exceptions, unanimous in pronouncing it decidedly contagious. To use the words of Bancroft, who was attached to the British army when it prevailed, "We could fill volumes with valid and well attested proofs of the contagious nature of plague." Howard states that every physician in the Levant, to whom he submitted written questions, and they were submitted to all residing within the circle of its ravages, reported without an exception that plague was contagious.

Yet in the face of such authority there are writers, as before observed, who strenuously maintain a contrary opinion; and one in particular, whose zeal in support of it, urged him to brave the danger of an exposure to plague in a pest-hospital, where his temerity was within eight days rewarded with a brace of pestilential buboes. Yet, like every obstinate dogmatist who is convinced against his will, he adhered to his hobby with increased pertinacity, and published two portly volumes, evidently written under the excitement of disappointed ambition, and in open violation of reason and common sense. So true is this, that every reader must, without farther light upon the subject, lay down the work with convictions directly the reverse of those which Dr. McLean aims to produce.

But if quarantine upon persons in the Mediterranean is unnecessarily rigorous, and susceptible of amelioration in reference to plague, much more so is it in respect to yellow

fever;—a disease, which a vast majority of those who are better acquainted with it, pronounce to be non-contagious.

We might, however, leave foreign sanitary laws to the management of their authors and executive officers, and confine our inquiries to the measures proper for regulating commercial restrictions at home, were it not that the welfare of our commerce in the Mediterranean ports, is deeply involved in the administration of our own laws. If yellow fever has been reported to exist in any of our cities, our vessels are forthwith subjected to a quarantine in the ports referred to, so rigorous, as sometimes to frustrate the best concerted voyage. This has afforded a plea to the advocates of protracted quarantines in this country for increasing their rigor. They contend that as the restriction in those ports is graduated in some degree by the system of quarantine that exists in the port from which any vessel has arrived, our commerce would gain more by such abbreviation of it abroad, than it loses by increased duration at home. They cite the example of Great Britain, which, at the suggestion of the Levant company in 1821, mitigated her own system; but was soon compelled to return to it, by reason of the increased restrictions which such mitigation produced in Mediterranean ports. But it should be remembered that the experiment of Great Britain referred exclusively to the plague, a disease unequivocally contagious, and which could be carried from the Levant to England, and returned to the Mediterranean, before the time of quarantine would expire to which a vessel having it on board would be subjected, had she remained in that sea. The case would be quite different with an American ship that has to cross the Atlantic twice, in order to carry into a Mediterranean port a plague that she has previously caught in the Levant. It is fear of yellow fever alone, be it remembered, that effects our commerce abroad; and consequently the experiment of Great Britain is inapplicable. Besides, it is not likely that any attempt to propitiate the favor of foreign health officers by conceding that this fever is contagious, will produce much good effect: on the contrary, if convinced that it is not so, an inflexible adherence to that opinion and avowal of it in the terms of our quarantine system, would

do more to awaken candid inquiry, and produce conviction in the minds of foreigners, and consequent removal of the burthensome restrictions complained of, than any concession of the point in controversy.

Unfortunately, however, the persistency and clamor of a few contagionists in our own country are likely to prolong the existence of these restrictions. Their writings are quoted as high authority by foreigners, whilst such men as Rush, Miller, and a galaxy of living worthies, who have regarded yellow fever as non-contagious, are referred to with doubts and distrust. Nor is this the worst of it;—the obtrusive interference of a few contagionists keeps the public mind unsettled in our own country, and fearful of any amelioration that might be proposed in our own quarantine system. So true is this, that although their number is less than one in fifty of the profession generally, yet this small minority virtually control public opinion, in respect to quarantine directed against yellow fever, and are able to prevent the enactment of any laws that shall exclude the idea of its being contagious. But more of this hereafter.

In discussing the question whether our commercial restrictions are useful, it is proper to specify all diseases against the spreading of which they are intended to operate. These are, plague, small-pox, cholera, and pestilential fevers. Remove all danger of importing these, and no restrictions would be tolerated. *Do they prevent these?* In respect to plague, an immunity for two centuries is probably a sufficient guarantee for our future safety. Unconfined in its ravages to the hot season to which our restrictions are limited, it is hardly possible that these have interposed any barrier to its introduction. There certainly can be no propriety, therefore, in aiming future restrictions against it, excepting where cases actually exist on board—a thing that has never yet happened in any vessel that has arrived in our ports, and probably never will.

The same may be said of small-pox, which can be imported at any season, and from any part of the world. It exists either in its genuine or modified form in New-York and Philadelphia nearly the year round, and any system of

quarantine, further than to exclude vessels from cities that have it actually on board, would interrupt all commercial intercourse between our principal maritime cities.

Will quarantine laws prevent the importation of cholera? Experience throughout Europe answers in the negative. *Cordons Sanitaires* and quarantines were instituted in every nation with no other result than enormous expenses and suffering, to nations and communities. If such was their effect where power is despotic, and means unlimited, what can the feeble arm of a republic accomplish by such measures? Two prominent characteristics of this pestilence are, its pursuing a line of march from east to west, regardless of human barriers, and its preference for the haunts of filth, intemperance and indigence. Is it said that the first victim upon our shores was a new emigrant? Where, I would ask, could the disease find more ripened subjects for its aliment, than a ship load of miserable emigrants that lay in its path to this continent?

Its preference for such persons and places was again manifested in the brig Amelia, on her way from New-York to New-Orleans, crowded with more than a hundred persons. With the predisposition to the disease that existed throughout the United States, and the actual longitude it had made agreeing with that of Charleston, is it any thing remarkable that a boat's crew of wreckers who boarded said vessel when she stranded upon an island off that city, should be attacked upon going into the hold of said vessel? I would inquire, too, why one of said boat's crew, who returned and died of cholera in the city, did not communicate it to some attendant, and why the physicians who attended at the island, and endured great fatigue among the sick, did not experience an attack? Yet these two cases, of the emigrant at Montreal, and the wreckers on board the Amelia, are the strongest evidence adduced by contagionists in the United States, that quarantines against cholera may be useful; whilst the whole history of its progress, from first to last, in this country, has been decidedly as elsewhere, against the utility of quarantines.

The before mentioned list of diseases, which call for quarantine restrictions, is reduced then to malignant fevers. By

these, I mean the typhus, called hospital, jail, or ship fever, and yellow fever. The former occurs in crowded, filthy, and ill-ventilated apartments, where little or no vegetable decomposition is going on, and which seems, therefore, to be of animal origin. It probably arises chiefly from perspirable matter, or the product of respiration, aided perhaps by exhalations from the alvine discharges. But it is not in their recent state that these emanations possess such noxious qualities. It is only where they have existed for some time, and by some process, probably chemical, have passed into a state of great virulence. But the morbid action they excite never amounts to a contagious disease—that is, communicable to others, in a pure atmosphere.

I am aware that authors of high distinction tell us that typhus prevails in cold seasons, and yellow fever in summer. But admitting that there is a winter typhus, be it the epidemic cold plague, or the contagious typhus of Bancroft, or spotted fever, their existence does not prove that persons can with impunity be crowded together in a ship's hold, some of them, perhaps, already sick, and unable to take an airing on deck in hot weather. Dupuytren, Larrey, and a host of distinguished hospital surgeons, testify to the production of a low typhus in crowded hospitals in summer, and of its abatement when the number of inmates is diminished. The same effect is more likely to take place in a ship, where hospital regulations in respect to cleanliness do not exist. Such was formerly the mortality from this cause, on board transports, carrying convicts to New Holland, that in 1799 the number of deaths was as one out of seven; a full proportion of which, occurred between the warm latitudes of Gibraltar and the Cape of Good Hope, where great heat prevails. But "within the period since naval surgeons have been appointed to convict ships, and better regulations in regard to ventilation, cleanliness, and crowding, adopted, it is considered very unfortunate, indeed, if two or three deaths occur in a voyage. In 1822, the deaths were as one in 500." [Collins' History of New South Wales, p. 102 and 436.]

The noxious air referred to, seems to affect those who are suddenly exposed to it, more certainly, than those who,

from habit, are gradually acclimated. It seems also capable of attaching itself to clothes, and of rendering them capable of communicating the fever. They may do so even when the person who wears them, will, from his gradual acclimation, escape an attack; and this, too, at some distance from the contaminated apartment. I might cite cases, where criminals conveyed from their cells in ordinary health, to a pure atmosphere, for the purpose of consulting their counsel, have imparted to them a malignant jail fever. The reported occurrences at Black Assizes and Old Bailey, known to every one, are of a similar character. But the vitiated air I am considering does not produce a disease that, like smallpox, can reproduce itself in others, or any thing that can be called contagious. A large number of those who were present at Black Assizes, and Old Bailey, took the malignant jail fever from the prisoners, but they did not communicate it to others.

The quarantine laws of New-York wisely specify in reference to danger arising from crowded ships, that "all vessels from foreign ports having on board forty or more passengers may be quarantined if arriving within particular periods, in any year.* Passengers, under this law, are prevented from carrying the cause of typhus into a city, as the prsioners did from the jail to Black Assizes. All experience, however, proves that the time necessary for ventilation is very short, and it is probable that so far as persons and clothing are concerned, soap and water, which are probably the best disinfectants, will, in a day or two at farthest, obviate all danger of importing this kind of fever.

From the foregoing remarks it appears, 1. That in respect to Plague, which causes the most burdensome re-

* And it is moreover enacted that, "whenever it shall appear to the Board of Health, that any provisions of this chaper, *limited in their operation to a certain period of the year*, ought to be extended, the Mayor of the city shall issue his proclamation, *extending such provisions to such time* as shall be mentioned in the proclamation; and such provisions shall thereupon be extended accordingly, and with the like effect, as if the periods mentioned in the proclamation, had been enacted in this chapter." Title 5th, of chap. 14, of the Revised Statutes.

strictions in the south of Europe, quarantines are not required in this country. 2. That the existence of small-pox, or varioloid, in any port from which a vessel arrives, is with propriety no longer deemed a sufficient cause for excluding her from the wharves of any city, excepting where cases of it actually exist on board. 3. That the cholera has shown utter defiance to all quarantines; and 4. That ship, or jail fever demands them for no longer time, than is necessary for cleansing and ventilating.

The only disease, then that remains to be considered, is yellow fever,—which has done more to establish and prolong burdensome, sanitary laws in the United States, than all other diseases besides. The propriety of mitigating the severity of these, in reference to this fever, demands more particular consideration, and will occupy the remainder of this paper.

[To be continued.]

MISCELLANY.

We are happy to present to our readers, in accordance with the pledge of the article by which the Naval Magazine was introduced to the public, a first reprint in the United States of an important paper on Science, from a source entitled to preeminent respect.

INSTRUCTIONS

FOR MAKING AND REGISTERING METEOROLOGICAL OBSERVATIONS in Southern Africa, and other countries in the South Seas, and also AT SEA. By Sir JOHN F. W. HERSCHEL, K. H., F. R. S., &c. &c., at the Cape of Good Hope.

THE great importance of possessing an exact and carefully registered account of the variations of the Barometer, Thermometer, and other Meteorological Instruments, and of the Winds and Weather, throughout that extensive region of the Southern Hemisphere, which is either included within the boundaries of this Colony*, or readily accessible from it, has determined the South African Literary and Philosophical Institution to request the assistance of its Correspondents, and of all who may have leisure and inclination for observations of the kind, towards the gradual accumulation of a continued and extensive series of Meteorological Journals, and towards carrying into effect a concerted plan of contemporaneous observations, on stated days, from which it is conceived that much advantage will be derived. The Institution therefore solicits the attention of its Correspondents, and of the lovers of knowledge generally, to this object—and earnestly requests their co-operation in making, arranging, and forwarding to its Secretary, resident in Cape Town, observations of the nature, and, so far as practicable, according to the plan of those hereafter detailed. Such observations alone can furnish the materials necessary for an accurate and sci-

* Cape of Good Hope.

entific inquiry into the laws of *climate*, regarded as an object of local interest, and are the only data through which (taken in conjunction with the known laws of physics) the more general relations of Meteorology can be successfully investigated.

It can scarcely be necessary to insist on the practical importance of this Science to the Agriculturist, to the Navigator, and indeed in every branch of human affairs, or to dilate on the benefits which must accrue to mankind in general, from any successful attempts to subject to reasonable and well-grounded prediction, the irregular and seemingly capricious course of the Seasons and the Winds; or on the advantages, purely scientific, which must arise from a systematic development of laws, exemplified on the great scale in the periodical changes of the atmosphere, depending, as they do, on the agency of all the most influential elements, and embracing in their scope every branch of physical science. It is more to the present purpose to observe that, from what has already been done in this department of human knowledge, there is every reason to hope that no very distant period may put us in possession of the key to many of the most intricate Meteorological Phenomena, and enable us, though not to predict with certainty the state of the weather at any given time and place, yet at least to form something like a probable conjecture as to what will be the general course of the next ensuing season—perhaps to prepare us beforehand, for violent and long-continued gales of wind—great drought—or extraordinarily wet seasons, &c., in the same manner that our knowledge of the nature and laws of the tides, although confessedly imperfect, and in great measure empirical, yet enables us to announce beforehand, unusually high or low tides. No doubt such predictions of the weather, although only of a probable nature, would be highly valuable and useful, and would materially influence the practice of men in all operations thereon depending. In illustration of this, we need only refer to the value set by many farmers and others on Weather-tables, founded on no sound principles, and ratified, at best, if at all, only by a very partial and limited experience—or, to choose a better instance, we may cite the

importance which is now attached by every seaman to the indications of the Barometer, and the numerous cases with which nautical records abound, of great mischief, or even shipwreck, avoided by timely attention to its warnings.

Meteorology, however, is one of the most complicated of all the physical sciences, and that in which it is necessary to spread our observations over the greatest extent of territory, and the greatest variety of local and geographical position. It is only by accumulating data from the most distant quarters, and by comparing affections of the atmosphere at the same instant at different points, and at the same point at different moments, that it is possible to arrive at distinct and useful conclusions. Hence arises the necessity of procuring regular series of observations made on a uniform system, and comparable with themselves and with each other, by observers at different stations, and of multiplying the points of observation as much as possible over the interior surface of continents—along sea coasts—in islands—and in the open ocean.

The geographical position of this colony renders it perhaps the most interesting and important situation on the surface of the globe, for observations of this nature; first, whether we regard it either as an advantageous station for observing the commencing action of the great counter-current of the trade winds, where it first strikes the earth's surface, and, combined with the action of the heated surface of the African Promontory, gives rise to that remarkable alternation of South-east and North-west winds, which forms so distinguishing a feature of our climate—or consider it, secondly, as the farthest extremity of one of the two great *lobes* of land which form the terrestrial part of our globe, and as such, constituting at once a barrier to the currents and tides of two great oceans, and a limit to their climates—or, lastly, as a great nautical station, and one not devoid of difficulty and danger, in which every consideration of practical interest combines to stimulate the curiosity of the theorist, and give importance to the results of his inquiries.

As these pages may fall into the hands of many who have been little in the habit of observing systematically, or who

may not be in possession of instruments of the nicest construction, attention to the following instructions is recommended as the means of rendering their observations most available for useful purposes, and comparable with each other, and with those intended to be referred to as standards.

I.—*General Recommendations and Precautions.*

1. The continuity of observations ought to be interrupted as little as possible by changes in the adjustments of instruments—in their places—exposure—mode of fixing—or of reading off and registering them. Whenever any alteration in these or any other particulars take place, especially such as are likely to affect the zero points, or otherwise to influence the mean results, it should be noticed in the register.

2. So far as possible, registers should be complete—but if by unavoidable circumstance of absence, or from other causes, blanks occur, no attempt to fill them up by general recollection, or by the apparent course of the numbers before and after, should ever be made.

3. The observations should, if possible, all be made by one person—but as this may often be impracticable, the principal observer should take care to instruct one or more of his family how to do it, and should satisfy himself by many trials that they observe alike.

4. The entries in the register should be made at the time of observation, and the numbers entered should be those actually read off on the respective scales of each instrument, on no account applying to them previous to entry any sort of correction, as, for instance, for zero, for temperature, capillarity, &c. All these and the like corrections, being matter of calculation and reasoning from other observations, are to be reserved till the final discussion of the series, and for separate determination and statement.

5. If copies be taken of the registers, they should be carefully compared with the originals by two persons, one reading aloud from the original, and the other attending to the copy, and then exchanging parts, a process always advisable wherever great masses of figures are required to be correctly copied.

6. A copy so verified, or the original, (the latter being preferred) should be transmitted regularly (if possible *monthly* from places within the limits of the colony) to the Secretary of the South African Literary and Philosophical Society, at Cape Town, which institution on its part will take care that such documents shall not merely be treasured as a dead letter in its archives, but shall be rendered available towards the improvement of Meteorological knowledge, to the full extent of their actual scientific value.

7. The register of every instrument should be kept in parts of its own scale, as read off, no reduction of foreign measures or degrees to British being made—but it should of course be stated what scale is used in each instrument.

II.—*Of the times of Observation and Registry.*

Meteorological observations should be made and registered daily, at stated and regular hours. In fixing on these, some sacrifice of system must of necessity be made to the convenience and habits of the observer. The best hours, in a scientific point of view, would be those of Sunrise, Noon, Sunset, and Midnight, and these are the hours for which the registers are kept at the Royal Observatory. But these are not the hours adapted to general habits, and, since the midnight observation is likely to be pretty generally neglected elsewhere than in an Astronomical Observatory, the following hours, for a division of the day into three parts, are proposed for what may be deemed the Morning, Afternoon, and Evening observations, viz.

Morning, - - -	8 A. M.
Afternoon, - - -	2 P. M.
Evening, - - -	8 P. M.

If, however, the habits or engagements of any one should not allow him to conform to these hours, rather than not observe he may select his own, specifying only what they are at the head of every page of his register, and adhering steadily to them in practice, only observing to make the extreme observations of each day equidistant from the middle one.

At the same time it will be borne in mind, that in what concerns the great Meteorological questions on which the most interesting features of the subject depend, the night is quite as important as the day, and has hitherto been far too much neglected. To any one, therefore, who may feel disposed to enter more zealously into the subject, and will not consider some personal inconvenience ill undergone, for the sake of affording data of a peculiarly valuable description, this committee would most earnestly recommend the adoption, in preference to all others, of the quaternary division of the 24 hours as followed at the Royal Observatory above alluded to. And they leave it to the consideration of the Council, whether the keeping and transmission of registers on this principle might not advantageously be distinguished by some honorary reward, as that of a Medal for instance, should the funds of the Institution admit of it.

With a view, however, to the better determining the laws of the diurnal changes taking place in the atmosphere, and to the obtaining a knowledge of the correspondence of its movements and affections over great regions of the earth's surface, or even over the whole globe, the Committee have resolved to recommend, that four days in each year should henceforth be especially set apart, by Meteorologists in every part of the world, and devoted to a most scrupulous and accurate registry of the state of the Barometer and Thermometer; the direction and force of the wind; the quantity, character and distribution of clouds; and every other particular of weather, through the whole twenty-four hours of those days, and the adjoining six hours of the days preceding and following*. The days they have been induced to fix on and recommend for these observations are, the 21st

* This is necessary by reason of the want of coincidence of *the day* in different parts of the globe arising from difference of longitude. In order to obtain a complete correspondence of observation for 24 successive hours over the whole globe, it must be taken into account that opposite longitudes differ 12 hours in their reckoning of time. By the arrangement in the text the whole of the *astronomical day* (from noon to noon) is embraced in each series, and no observer is required to watch two nights in succession.

of March, the 21st June, the 21st September, and the 21st December, being those, or immediately adjoining to those of the Equinoxes and Solstices, in which the Solar influence is either stationary or in a state of most rapid variation. *But should any one of those 21st days fall on Sunday, then it will be understood that the observations are to be deferred till the next day, the 22d.* The observation at each station should commence at 6 o'clock, A. M. of the appointed days, and terminate at 6 o'clock, P. M. on the days following, according to the usual reckoning of time at the place. During this interval, the Barometer and Thermometer should be read off and registered hourly, or at all events, at intervals not more than two hours asunder, and the precise hour *and minute* of each reading should be especially noted.

For obvious reasons, however, the commencement of every hour should, if practicable, be chosen, and every such series of observations should be accompanied by a notice of the means used to obtain the time, and when practicable, by some observation of an astronomical nature, by which the time can be independently ascertained within a minute or two.* As there is scarcely any class of observations by which meteorology can be more extensively and essentially promoted, it is hoped that not only at every station of importance in this colony, but over the whole world, and on board ships in every part of the ocean, individuals will be found to co-operate in this inquiry. Every communication of such observations addressed by channels as secure and as little expensive as possible, to the Secretary of this Institution will be considered as highly valuable.

III.—*Of meteorological instruments, and first of the Barometer and its attached Thermometer.*

The Barometer is the most important of all Meteorological instruments. Its office is to measure the actual pres-

* For example, the first appearances and last disappearances of the Sun's upper and lower border, above and below the sea horizon, if at sea or on the coast,—or, on land the exact length of the shadow of a vertical object of determinate length on an horizontal level, at a precise moment of time (not too near noon,) &c.

sure of the atmosphere on a given horizontal surface, at the time and place of observation. Its fluctuations are observed to have considerable relation to changes in the weather, and especially of the wind. Hence its use as a weather-glass.

A Barometer should be examined, before setting it up, for air-bubbles in the tube, and for the existence of air above the mercury in the upper part of the tube. This is done by gently inclining the instrument either way from the horizontal position, a little up and down; when air-bubbles, if large, will be seen to run to and fro, and must be evacuated by inverting the instrument, and by gentle blows on it with the hand, driving them up into the cistern. If this cannot be done, the instrument is useless. If air exists to an objectionable amount *above* the quicksilver, it will not tap *sharp* against the upper end of the tube when the Barometer is quickly inclined from a vertical position, so as to make the mercury rise above its level, nearly to the top, and then gently *jerked* lengthways and backwards. If the blow is puffy and dead, or is not heard at all, the amount of air must be considerable, and may be expelled by inversion.

In fixing the Barometer, choose a good light near a window, but not exposed to sunshine, in a retired apartment, little liable to sudden changes of temperature or to drafts of wind. Adjust the tube to a vertical position by a plumb-line, and fix it so as never to shift from that position. Before reading off, give a few taps on the instrument, enough to make the upper end of the column of quicksilver *shake* visibly, as the mercury is apt to adhere to the glass and give erroneous readings. In reading, bring the index always opposite to one part. The correct part to choose is the summit of the convexity of the mercury, to which the index should be made a tangent, but if this be difficult to hit, either from the construction of the index, or the want of a proper fall of light, the line of junction of the mercury and glass may be taken. In that case the tapping should never be omitted. Whichever mode of reading is once adopted should be stated, and always adhered to. A piece of white paper placed behind the upper part of the tube will generally enable any one to read off by the convexity of the quick-

silver. In placing the index notice whether it appears to shift a little up and down, as the eye is raised or depressed. This is called Parallax, and is a source of uncertainty to be avoided by placing the eye in reading always on the *exact level* of the top of the mercurial column.

Barometric observations require corrections of three kinds, and to render them available and comparable with others, it is necessary that their amount should be ascertained and distinctly stated. The first is called the Zero Correction. It includes several subordinate corrections arising from different sources, such as that originating in a faulty placing of the scale of inches, that due to the capillary depression of the Mercury in the glass tube, and the constant part (which at a fixed station is nearly the whole) of the depression arising from the presence of air or vapor in the upper part of the tube.

To determine the zero correction, the Barometer must be compared with a standard instrument, such as that at the Royal Observatory for instance, or some other which has been compared with it, or with some other standard of equal authority. Such comparison ought never to be omitted before forwarding the Barometer to its place of destination, nor should any opportunity be neglected of comparing it, when fixed in its place, with a good portable Barometer. In making such comparisons, all that is necessary is to record the readings of both the instruments, after at least an hour's quiet exposure, side by side, that they may have the same temperature. If compared by two observers, each should read off his own Barometer in his usual manner, and each should take a mean of several readings, then each should verify the other's result. By this means, the zero of one standard may be transported over all the world, and that of others compared with it ascertained.

The amount of the zero correction is often very large, as two or three-tenths of an inch, but its influence on the mean results of recorded observations, falls wholly on the determination of the heights of the station of observation above the mean level of the sea, and affects little, if at all, any conclusions of a meteorological nature which may be

deduced from them. Hence, if proper care be taken to preserve a Barometer, once set up, immoveable, a long and regular series of observations with it has a value independant of any knowledge of this element, and it is fortunate that this is the case, as the zero correction is one extremely difficult to determine exactly *a priori*.

In transporting a *compared* Barometer to its place of destination, great care is necessary. It should always be carried *upright*, or considerably inclined, and *inverted*, and over all rough roads should be carried in the hand to break the shocks to which it would otherwise be exposed. If strapped horizontally under the roof of a colonial wagon, or tied upright against the wood-work, with its head resting on the floor, there is not a chance of its escaping destruction. Strapped obliquely across the shoulder of a horseman, however, it travels securely and well, and with common care in this mode of transport, its zero runs no risk of change.

The next correction, and the most important of all, is that due to the temperature of the Mercury in the Barometer tube at the time of observation. To obtain this, every Barometer requires to have attached to, or fixed very near it, a Thermometer, called the attached Thermometer, which must be read and registered at each observation of the Barometer. It is preferable in practice to read off this Thermometer *first*, to avoid the error arising from breathing on, or standing long near it, while reading the Barometer itself. The zero of this Thermometer should be ascertained by comparison with a standard at the temperature of about 60° Fahr.

The third correction applicable to barometric observations arises from change of level of the mercurial surface in the cistern, owing to the transfer of a portion of its contents to or from the tube. In Barometers with small cisterns, and where the lower level cannot be adjusted at each observation, its amount may be large, and its effect being always to make the apparent fluctuation less than the real, *in a fixed proportion*, it ought, if possible, to be ascertained. The data necessary to be known are—first, the internal and external diameters of the tube—secondly, that of the cistern containing the mercury, at the surface, where the tube plunges into

it. These particulars, as they must be known to the maker, ought to be inquired of him, and indeed ought to be engraved conspicuously on some part of the instrument.

Although all these corrections are necessary for the strict *reduction* of registered observations, they ought not to be applied to individual observations previous to registry. It is sufficient to know them. Their effect is in most cases easily and safely applicable to mean results, and to the conclusions therefrom deduced, and a world of troublesome and often mistaken calculations may be saved by so applying them.

Of the External Thermometer.

The External Thermometer should have a scale on which whole degrees are read off, and divisions large enough to admit of estimating tenths, or at least quarters of degrees, by the eye. It should be compared with a standard, and the difference stated, at one or more temperatures (the wider asunder the better) within the range of the climate in which it is to be used. In fixing it, choose a perfectly shaded but otherwise free exposure, and one where no *reflected* sunbeams from water, buildings, rocks, or dry soil, can reach it; and easily accessible for reading. There fix it firmly and upright. In reading it, avoid touching, breathing on, or in any way warming it, by near approach of the person. The quicker the reading is done the better.

Although read off at stated times, notice should be taken of all sudden and remarkable changes of temperature as indicated by the external thermometer, whenever they occur. In the neighborhood of the Cape, and in many other parts of the continent, hot winds frequently set in with great suddenness, often in the night, and singular alternations of hot and cold temperature occur, disturbing the regular laws of the diurnal fluctuation, and connected, doubtless, with many interesting meteorological phenomena peculiar to the climate of South Africa.

Of the Maximum and Minimum, or Self-registering Thermometer.

This should be placed horizontally in some place out of

doors, shaded from direct radiation and rain, and otherwise freely exposed to air, and so fastened as to allow of one end being detached from the fastening and lifted up, so as to let the indexes within the boxes slide down to the ends of the fluid columns, a more convenient mode, when the steel index is free enough to allow it, than the use of a magnet.

Both the Thermometers should be read off as early as possible every morning, and the indexes re-adjusted. But as double maxima frequently, and occasionally double minima occur, in consequence of sudden changes of temperature, it is recommended occasionally to inspect both of them, with a view to ascertain whether the motion of either the mercury or spirit has been reversed in an unusual manner, and such double maxima or minima, when remarkable, should be recorded as "supernumerary," with their dates and leading features.

The Self-registering Thermometer is extremely apt to get out of order, by the indexes becoming entangled in the column of fluid. In travelling, they should not for a moment be carried with the mercury bulb downwards—if this should happen, they are *sure* to arrive in a state unfit for use. To correct them is tedious, and always hazards fracture. With great care, however, it may be done, as follows:—

1st. The Spirit Thermometer. By many jerks force the index down to the junction of the bulb and tube; then by cautiously heating and cooling alternately the bulb, the tube, or the air vessel at the top, as the case may require, the disunited parts of the spirit may be *distilled* from place to place till the whole is collected in one column in union with the spirit in the bulb.

2d. The Mercurial Thermometer. When the steel index gets immersed in the mercury it cannot be moved by a magnet, and lets the mercury pass by its side. First cool the bulb (by evaporation of ether, if necessary) till the mercury is either fairly drawn down below the index, or a separation takes place in the column, leaving the index with mercury above it. Endeavor then by tapping, warming the tube, or by the magnet, to loosen the index ever so little, then apply heat to the bulb, and drive up the index with its

superabundant mercury quite into the air vessel. This requires many trials and much patience. When there, hold the instrument bulb downwards, and suspend the index by a magnet at the top, allowing any globule of mercury to drop into the origin of the tube below, then heat the bulb cautiously over a very small clear flame of an oil lamp till the mercury rises to the very top of the tube, and fairly unites with the globule there awaiting it. Let the bulb cool and the mercury will sink in one united column; if not, heat it again. When this is accomplished, the index may be set loose, by withdrawing the magnet, and restored to its proper position in the tube.

A Self-registering Thermometer may be advantageously left (properly secured) for a whole, or parts of a year, on elevated summits, or other remarkable points, to ascertain their maxima and minima of temperature during absence. In such cases, take care to defend them from discovery, or accident from wild animals, birds, snakes, &c. In taking it up for reading off, observe not to derange the indexes, and do not leave it without seeing that the indexes are in contact, and the temperature that of the air at the moment.

Of Thermometers buried in the Earth.

Thermometers buried at different depths, for the purpose of examining the monthly changes of temperature of the soil, should have their balls and lower part of the scale well wrapped up in woollen cloth or pounded charcoal, and should be placed in strong earthen vessels, which may be entirely withdrawn from the ground, so as to allow of inspecting and reading off the scale without exposing the balls to any possibility of changing their temperatures while under examination. The vessels should be fitted with covers, to defend the scale from injuring in burying and digging up.

A pipe of earthenware, (composed of separate pieces,) or one of wood, may be sunk ten or fifteen feet below the surface, into dry earth, and a thermometer, defended as above, lowered *by a chain*. The pipe being then obstructed at every two feet, by some stuffing readily hooked up, the thermometer may be easily examined, and a register of its

indications kept with very little trouble. In like manner the temperature of wells may be registered.

Of the temperature of the Sea.

The surface temperature of the water at sea should be registered as a matter of course, with the same regularity and at the same hours as the barometer and thermometer. It is more conveniently (and with quite accuracy enough for the purpose) obtained by taking up a bucket full of the water and stirring round the thermometer in it. Whenever a change to the extent of 2° Fahr., appears to have taken place since the last observation, a fresh bucket full should be taken up, and the observation repeated. It should also be noticed whether rain has fallen since the last observation. A sudden depression of 3° or 4° indicates the near approach of land. In a voyage from England, lately made by a Member of this Committee, the temperature of the surface water fell at once 9° Fahr., on approaching within few miles of the entrance of Table Bay.

The temperature of the sea at considerable depths, can hardly be regarded as a subject of ordinary meteorological inquiry and regular registry, though undoubtedly one of much physical interest; for which reason it is not considered necessary to dwell further on it.

Of the Hygrometer, &c.

In the absence of Daniell's Hygrometer, or of ether to cool it, the degree of dryness of the air may be ascertained by observing the temperatures marked by two thermometers, suspended freely side by side (but not in contact) in the shade, and completely defended from all radiation *to* or *from* the *sky*, the one having its bulb and stem naked, the other with the bulb and lower part of the stem wrapped in linen or cotton, and thoroughly wetted with pure spring or rain water. The temperatures indicated by both, should be noted when the wetted thermometer refuses to sink lower, and the conclusions left for subsequent calculations. The naked thermometer may be the "External Thermometer" itself, in which case a coated thermometer may be kept always sus-

pended near it, completely screened as above mentioned, and wetted some minutes previous to the regular daily readings.

If a hair Hygrometer be used, its points of absolute moisture and dryness should be frequently ascertained, as they are apt to change. The former may be found by keeping it some time in a close covered jar lined with wet blotting paper, and having water in it, and noting the point of moisture beyond which it refused to go. The latter, by keeping it in the same manner in a jar perfectly air-tight, over fresh burnt quick-lime, till it refuses to indicate a higher degree of dryness.

The best measure of the *momentary evaporating power* of the air, seems to be the depression of the wetted thermometer below the dry one. But the *actual evaporation* from a given surface, is quite another thing, and a question may very reasonably be raised, how far any useful approximation to a knowledge of the total evaporation from an extensive and diversified surface, unequally moistened, and variously exposed to the sun, defended by clouds, or refreshed by dews, *can* be obtained by any small or local experiments.

The Rain Gauge is an instrument of such extremely easy construction, that any person who lives near a tinman can procure one. In a climate so arid as that of Africa, however, it must be remembered that it will often need examination and cleansing, owing to long intervals of disuse, in which insects and dust may lodge. It will often happen, too, that the slight rain of one day, if left unregistered, will be entirely lost by evaporation in the next—nay, that slight and transient showers may never enter it, being evaporated from it as they fall. The effect of copious dew, too, must be separated from that of rain, so that the mere registry of the contents of the gauge is not of itself a sufficient indication whether rain has fallen in the night or not. However, there are usually good reasons for decision on this point from other indications. Attention to the amount of dew is very necessary, not only because the meteorological questions involved are of a high degree of interest generally, but because in arid climates the dews are almost as much importance to the maintenance of vegetation as the rain.

In stating the quantity of rain daily received in the gauge, the height of the receiver above the soil should be mentioned, experience having shown that the quantities of rain which actually fall on a given area on the ground, and at a very moderate height above it, often differ materially. In some localities and circumstances, the rain-drops receive accession from the air as they descend, in other they undergo partial evaporation. The former is generally the case in cool moist climates—the latter may be expected in this country.

Of the Wind.

The points most important to remark respecting the wind, are,

1st. Its average intensity and general direction during the several portions of the day devoted to observation and registry.

2ndly. The hours of the day and night when it commences to blow from a calm, or subsides into one from a breeze.

3rdly. The hours at which any remarkable changes of its direction take place.

4thly. The course which it takes in veering, and the quarter in which it ultimately settles.

5thly. The usual course of *periodical winds*, or such as remarkably prevail during certain seasons, with the law of their diurnal progress both as to direction and intensity—at what hours and by what degrees they commence, attain their maximum, and subside, and through what points of the compass they run in so doing.

6thly. The existence of Crossing Currents at different heights in the atmosphere, as indicated in the course of the clouds in different strata. In observing these, it is advisable to fix the eye by some immoveable object, as some point of a tree or building, the sun or moon; otherwise mistakes are apt to arise.

7thly. The times of setting-in of remarkably hot, or cold winds,—the quarters from which they come, and their courses, as connected with the progressive changes in their temperature.

8thly. The connection of rainy, cloudy, or fair weather, with the quarter from which the wind blows or has blown, for some time previous.

9thly. The usual character of the winds as to moisture or dryness, not as deduced from mere opinion or vague estimation, but from actual observation of the hygrometric state of the atmosphere during their prevalence.

Among these particulars it will be seen that some are of a nature susceptible of daily observation and registry, while others call for an exercise of the combining and inductive faculty on the observer's part, and cannot be made out otherwise than by continued attention and habitual notice of phenomena with a view to the investigation of their laws. The general impression left upon the mind as to any of the points of this kind above enumerated, by the occurrences of the past month, will therefore be more properly stated, in the way of summary remarks at the end of the Monthly Registers, than as entries under particular days.

Of the state of the Sky.

In describing the state of the sky, as to clouds, &c., the observer will bear in mind that it is only in that region of the sky which is vertically above him that the true forms and outlines of the clouds are exhibited, and the area they cover, as well as the intervals between them distinctly seen. As they approach the horizon in any direction, their extent is foreshortened by perspective, their apparent magnitude diminished by distance, and their intervals covered in and hidden by their mutual interposition. In estimating, therefore, the quantity of clouds in the sky, regard must be had to this, and our judgment should rather be formed on a view of the region extending from the zenith every way half way down to the horizon, than from the aspect of the heavens below that limit. It would be better to notice both, and state, separately, the proportions in which each are covered, and the quarter of the horizon towards which the chief masses in the lower region lie.

The general aspect of clouds, as classed under the heads Cumulus, Cirrus, Stratus, &c., should be noticed, and espe-

cially the height of their inferior surfaces, or the level of the *vapor plane*, should be estimated. In a mountainous region this is easy, so long as the vapor plane is below, or not far above the summits of the hills, and in such regions the formation and dissipation of cloud in the neighborhood of the mountain summits, under the influence of certain winds, form a subject of study of a highly curious and interesting nature.

The formation of clouds at night, during calm weather, under the influence of a gradually descending temperature, is another point worthy of attention. It frequently happens that, without any perceptible wind, the sky will suddenly become hazy in some one point, and the haze condensing and spreading, in all directions without a wind, the whole heaven will become overcast in a remarkably short time. The same thing will sometimes occur nearly at the same hour for many nights in succession. Such phenomena should be noted whenever they occur.

Two or even three strata of clouds are very common in this district of South Africa. The lowest frequently resting immediately on the land and sea. The height and thickness of these strata, their connection with cross or opposite currents of wind in the regions where they subsist, and the laws of their formation and gradual intermixture, deserve to be studied with care, and with reference to the hygrometric state of the air at the time and place, and for several hours before and after.

Of Thunder and Lightning, and of the Electric State of the Air.

Connected with this part of the subject is the observation of shooting Stars and luminous Meteors. Remarkable ones should be noticed, and the moment of their appearance, their direction, duration, length of path, and *course among the Stars*, ascertained and noted, with the phenomena of their increase and decay of light, apparent size, separation into parts, trains left behind, &c. The *general* direction (if any) which they observe on particular nights, is a point also to be attended to. Such are the frequency and brilliancy of these splendid phenomena in the clear sky of this Colony, that

there can be no doubt of their affording an available method of ascertaining the differences of longitude of the most distant stations, if duly observed by persons furnished with means of ascertaining the time.

Thunder storms, of course, will be noticed when they appear under the general head of the weather, but it is of consequence also to notice distant lightning, not accompanied with thunder audible at the place of observation (by reason of its great distance*), especially if it takes place many days in succession, and to note the quarter of the horizon where it appears, and the extent it embraces. In an actual thunder-storm, especial notice should be taken of the quantity of rain that falls, and of the fits or intermittences of its fall, as corresponding, or not, to great bursts of lightning, as also of the direction of the wind and the apparent progress of the storm with or against it.

Observations of the Electrical state of the Air in serene weather are unfortunately too much neglected. The apparatus they require is simple, and by no means costly, and may be constructed, indeed, by any one for himself with ease.

If the Committee, in this their first Report, do not dilate on this and other of the less usually practised observations of Meteorology, it is because they wish for the present chiefly to call the attention to the accumulation of regular and daily observations of a more definite and numerical character. With this view they have drawn up, and by the liberal aid of Government, have procured to be printed, skeleton forms, of which a copy is annexed, for immediate distribution among such Correspondents of the Institution, and others, as may be willing to undertake their filling up. These comprise, it is true, only the registers of the Barometer and its attached Thermometer, with that of the external Thermometer, and a column of Remark for Wind

* Thunder can scarcely ever be heard more than twenty or thirty miles from the flash which produces it. Lightning, on the other hand, may be seen (or at least its reflection on the clouds, forming what is called *sheet lightning*) at the distance of one hundred and fifty or two hundred miles.

and Weather, as being the most essential and indispensable elements of Meteorology, but it is in the power of any one who pleases to supply additional information, and to those who have leisure, instruments, and inclination for the task, the Committee would particularly recommend the regular observation of the Wet Thermometer, those of the Self-registering Thermometer, and Weekly or Monthly Observations of Thermometers buried at different and progressive depths beneath the surface of the soil.

The printed forms provide for the arithmetical convenience of casting up the *means* of each month. In doing so it is requested that care will be taken to verify the results by repetition, and (that usual sources of error may not escape notice) they recommend in every instance, before adding up the columns, to look down each to see that no obvious error of entry (as of an inch in the Barometer, a very common error, or what is more difficult of detection, an error in the first decimal place) shall remain to vitiate the mean result. It is, perhaps, unnecessary to more than mention the precaution of *counting* the days in *each* column on which observations occur, so as to admit of no mistake in the *divisor*, and to use throughout the decimal arithmetic in calculating the mean results. Care and exactness in these points will in most cases add greatly to the value of the communications, as it will be quite impracticable for the Committee, should observations flow in masses, unreduced or erroneously reduced, to undertake the overwhelming task of recomputing them.

Although not, strictly speaking, a branch of meteorology, yet the collection of observations of the Tides has been made a part of the duties of your Committee, they propose the following stations as points where it would be especially desirable to obtain regular observations of the time and height of high and low water, according to the rules and on the plan proposed by Mr. Whewell, in his late researches on this subject, and they earnestly invite communications on this head from any residents at those parts who may have leisure and take interest enough in the important questions connected with the subject.

CAPE TOWN,	PORT ELIZABETH,
SIMON'S BAY,	KNYSNA,
SALDANHA BAY,	TRISTAN D'ACUNDA,
ASCENSION,	MADAGASCAR,
MAURITIUS,	MOZAMBIQUE.

In Cape Town and Simon's Bay, they have the pleasure to report, that a series of observations under the superintendance of Captain Bance and Mr. Levien have already been undertaken at the instance of the Astronomer Royal, and are now in active progress.

INSTRUCTIONS FOR COLLECTING SHELLS.

By Dr. John C. Jay of New-York, Corresponding Member of the U. S. Naval Lyceum.

Always procure what are termed *live shells*, that is, with the animal in them. This is only to be done by using a drag-net, or after violent storms, when live shells are often torn from the deep and thrown upon the sea-shore.

When they have been exposed for some time on the beach they get injured by friction, and their colors fade in the sun. In this state they are known among collectors by the name of *dead shells*, and are only to be taken when better cannot be procured.

It is sometimes difficult to detach the animals, particularly of Univalves, entirely from their shells. This is best done by boiling them a few minutes, and afterwards carefully picking them out, so as (if possible) not to break the spiral part or leave a portion behind. In Bivalves and other shells the animal may be easily removed with a knife ; after which a string should be tied round the valves, across the shell, to keep it close till the cartilage at the hinge stiffens. If the shell consist of more than one piece, keep all the parts together, and be particularly cautious that the hinge is not injured. The shell should be left exactly as it was found, and not cleaned or ornamented in any way, with the excep-

tion of extracting the animal. The mouths of rivers and their soils, especially when laid bare by the recess of the tide, should be carefully examined, as shells are found in them which are unknown elsewhere. Also, sandy coves and inlets of the ocean; fine or drifted sand; sea weeds, with their roots; all marine refuse; floating timber, and the bottoms of vessels; and even the stomachs of fish, the backs of the sea turtle, and the back and head of the whale. The land and fresh water kinds will in all situations present themsesves—in hedges and ditches; in streams and stagnant waters; in the crevices of rocks and old walls; in the clefts of the bark, and at the roots of trees; in arid plains and upland meadows, after the grass has been mown; in woods and marshes, and on mountains; under stones and fallen timber; on the leaves and at the roots of plants; and under the top stones of the loftiest buildings. The least troublesome method of collecting the small shells, and particularly land shells, is to put them in any kind of spirits while alive, and in the course of ten days the animal can be taken out with great ease, or it can be preserved with the shell, as you like. It would also be desirable to have the place where each shell or parcel of shells were found; also, their habits, uses, popular names, both among landsmen and seamen. Care should be taken in packing them, that they do not touch one another; and, if possible, it would be well to have a piece of tapaulin put round the box, as it is well known that the air in a ship's hold on a long voyage will injure the polish of a shell materially.

Above all, remember to collect all the most common shells of every place you visit, because whatever you find very common and abundant at one place may be very rare at another.

The value of a shell depends upon its being a *live shell*, upon its being whole and perfect in every respect, and upon its being a fine and handsome specimen of the kind. Broken and dead shells are not worth collecting, unless a better cannot be obtained.

BUST OF WASHINGTON, BY GREENOUGH.

The Rooms of the Naval Lyceum, as will be best learned from the subjoined letters, have, within the passing month, received the additional embellishment of a beautiful bust of the "Father of his Country."

NEW-YORK, May 5th, 1836.

SIR,—I beg leave to offer to the acceptance of the U. S. Naval Lyceum, of which you are President, the accompanying bust of Washington, executed in Floernce by our distinguished countryman Horatio Greenough, Esq., together with my best wishes for an Institution so well suited to promote the improvement of the Navy, and the honor and welfare of the country. I have the honor to be

very respectfully,
your most obedient,
(Signed,) JOHN C. HALSEY.
53 Chambers-street, New-York.

Commodore CHARLES G. RIDGELY.

U. S. Naval Lyceum, Navy Yard,
NEW-YORK, May 10th, 1836.

SIR,—In tendering to you the grateful acknowledgments of the Lyceum, for the highly finished marble bust of Washington, by our countryman Horatio Greenough, I cannot avoid expressing its gratification, that so appropriate an ornament to its rooms should, through your liberality, have been derived from so satisfactory and so distinguished a source, as that of this eminent American artist, whose characteristic ability seems happily illustrated in this esteemed likeness of the Father of his country.

In making this repetition of our thanks, we are reminded of your former valuable and important donations, which have greatly contributed to give interest to our collections, and caused your name to be held in remembrance, as one of the benefactors of this Institution.

I have the honor to be
with great respect,
your most ob't serv't,
CHA'S. G. RIDGELY.

JOHN C. HALSEY, Esq., New-York.

NAVAL INTELLIGENCE.

The U. S. ship Potomac, Sloop of war John Adams, and Schooner Shark, were at Gibraltar on the 24th of March, and sailed for Lisbon on the 30th, where the frigate Constitution, Com. Elliot, had been lying from the 8th of the same month. The Shark, in going over the bar at Gibraltar, in a heavy swell, rolled away her fore-top-mast, which took with it the jib-boom. She proceeded, however, on her voyage under fore and aft sail. When the squadron was last heard from, April the 19th, the Constitution, Potomac, and Shark, had proceeded through the Straits of Gibraltar to Mahon, leaving the John Adams at Malaga.

The U. S. Schooner Grampus, Lieut. Com. Boarman, bound to the West Indies, sailed from Hampton Roads on Friday morning, the 8th of April, and after proceeding to the edge of the gulf, sprung aleak, which compelled her to return. She sailed again, on the 16th of the same month, and was spoken on the 26th—all well.

The U. S. Sloop of war Warren, Capt. Taylor, sailed from Key West for Havana, on the 16th of April, left Havana on the 26th for Pensacola, and sailed from Pensacola, for the coast of Texas, on the 28th. On the 3d of May, when last heard from, she was off the bar of the Mississippi —all well.

Ship St. Louis, Capt. Rosseau, sailed from Pensacola for Vera Cruz on the 5th of April, having on board the Hon. Powhattan Ellis, as passenger. She returned again to Pensacola on the 30th of the same month—last from Tampico.

Ship Concord, Capt. Mix, arrived at Tampa Bay on the 2d of April; sailed on the 6th; arrived at Pensacola on the 8th, and sailed again for Tampa, on the 15th of the same month.

The U. S. Ship Peacock, and Schooner Enterprize, were at Colombo, Isle of Ceylon, on the 23d of December. The officers and crews of both vessels were in good health, and not a death had occurred since the commencement of the cruise. They sailed from Colombo for Sumatra, on the 25th of December.

The U. S. Schooner Jersey, Lieut. Com. Thomas R. Gedney, sailed on the 4th of May, for Sandy Hook, to recommence her surveying duties on the coast.

Ship Vincennes was at Canton, on the 16th January—to sail for Singapore on the 25th.

Ship Ontario, Capt. Salter, arrived at Rio Janeiro from Monte Video, 22d March. Ship Erie was expected at Rio from St. Catherine's, early in April.

Frigate Brandywine sailed from Callao for Valparaiso, 1st March. Schooner Boxer, for Callao from Panama, 23d February—all well.

A steamboat has been despatched from Washington to Norfolk, for the purpose of taking up some seamen to assist in navigating the frigate Columbia to the latter port. The frigate will be towed down, on the return of the steamboat, and immediately fitted for sea. It is expected she will leave Washington about the 30th of May.

The Frigate United States, at New-York, is lying off the Battery ready for sea, and her sailing orders are daily expected.

The Sloop of war Boston, at Boston, is ready for sea, and will be put in commission very soon.

The sloops Lexington, at Portsmouth, N. H., and the Natchez, at New-York, are also in a state of great forwardness, and will be put in commission in a very short time.

OFFICIAL GENERAL ORDER.

NAVY DEPARTMENT, 20th May, 1836.

Whereas, it had been heretofore decided that Midshipmen were to be considered as exempted from arrest for any debt or contract, under the provisions of the 5th Section of Congress of the 11th of July, 1798, "for establishing and organizing a Marine Corps," which section is in these words: "The non-commissioned officers, musicians, seamen, and mariners, who are or shall be enlisted in the service of the United States, shall be, and they are hereby exempted, during their term of service, from all personal arrests for any debt or contract." Doubts having arisen as to the correctness of

this decision, the subject has been carefully examined by the Attorney General of the United States, whose opinion is, that under that section, Midshipmen cannot be considered as arrested for debts or contracts ; and as I fully concur in this opinion, it is decided by this department, that Midshipmen in the Navy of the United States are not to be considered as exempted from arrest, within the meaning of the foregoing section.

(Signed,) MAHLON DICKERSON.

To all Officers in the Navy of the United States.

NAVAL SCHOOL.

The following Report, made in the Senate of the United States, should satisfy every one of the necessity and advantages of the school it recommends ; and may, we hope, even ripen conviction into action in Congress.

U. S. Senate, May 14.

The Naval Committee, to whom were referred the resolutions of sundry officers of the Navy, in relation to a Naval School, make report:

The subject to which the attention of the committee has been directed by these resolutions is not new to them. In the discharge of the duties assigned by the Senate, they have anxiously deliberated upon it; and before the reference which calls for this report, they had resolved to present it to the consideration of the Senate, and directed their chairman to report a bill for the establishment of a Naval School.

In coming to this decision, the committee take leave to refer to the course of others who have preceded them in their action upon this interesting subject. Upon the earnest recommendation of the Executive, provision was proposed by the Senate for the establishment of a Naval School, in the bill for the gradual improvement of the Navy, which was approved on the 3d March, 1827, but was lost by a very small majority. At the last session of the Senate, a bill was introduced for this object, and subsequently reported by the committee, but was not finally acted upon. In again pre-

senting it to the Senate, the committee are influenced by a strong and decided conviction of its indispensable necessity to the public interests, and to the honor, usefulness and efficiency of the Navy.

The sense entertained and expressed by the officers whose resolutions were referred, of the value of education to naval officers, and the impossibility of their obtaining it under the present system, meet the entire approbation of the committee, and they refer the Senate to them, as expressing sentiments and opinions worthy of respectful regard.

The nature and situation of the naval service exhibit strongly the necessity for the proposed measure.

Our Navy visits every land and every ocean. It protects a commerce at this moment as *valuable* as that of any other nation, though less than one other in amount of men and tonnage, scattered over the whole habitable globe, and exposed to dangers of every possible description. In the protection of this commerce our naval officers are often brought in contact with the Governments and official agents of every civilized nation, and are often obliged to have intercourse with them upon subjects which can only be properly treated by well-educated and well-informed men. They are, indeed, our national representatives in all other countries, and from them much of the estimate of us, as to our manners, intelligence, and character as a nation, must be drawn. It is not possible that their duties can be performed in the manner in which we should desire them to be performed, without science, intelligence, and knowledge. Besides, we are a growing nation, and it is our interest and our duty to draw from every other region every species of knowledge which can be useful to us. This can be more effectually and usefully accomplished by this, than by any other class of our citizens. But how can all these be accomplished by them without proper, practical, and useful education? And when are they to receive this education? They are appointed when mere boys, generally between the ages of 14 and 17, when it is not possible that they should be well informed and disciplined scholars. Their situation and duties in the service render it equally impossible that they should make

extensive literary and scientific acquirements, beyond the mere practical duties of the seaman. They have not pay enough at that period of their service to purchase the means of instruction, nor time enough to acquire it. Their employments are too active and steady.

The only mode by which it can be secured is, by the establishment of a school, which shall combine literary and scientific instruction with practical performance of a portion of their duties; and this may be accomplished by competent teachers, and by connecting with the school one or more small vessels, in which they may be compelled, under proper guidance, to perform in turn all the services of the common sailor, with those also which belong to office and command.

The expense of such an establishment need not be large. With it we may dispense with the present insufficient and almost useless system of instruction on board our cruising vessels, and the money expended upon it would go far towards supplying the means necessary for the support of the school.

So many considerations enter into the selection of a place for a Naval School, and it is so properly the duty of the Executive, that the committee have thought it proper to leave the selection to the Executive.

They report a bill.

New-York American.

We take pleasure in publishing the following testimonial of the House of Assembly of the State of New-York, to the merit of a gallant officer, and are happy to add that the resolution passed without opposition.

REPORT

Of the Committee on the Militia and Public Defence, upon the resolution relating to the naval services of Captain Daniel Turner. May 19th. 1836.

Mr Lockwood, from the Committee on the Militia and Public Defence, to which was referred the resolution introduced by the Honorable Prosper M. Wetmore, instructing said committee to inquire into the propriety of presenting Captain Daniel Turner of the United States Navy, with a

sword, as a mark of public respect for his naval and military services, and especially for his distinguished bravery in the battle on Lake Erie,

REPORTED:

That the committee have carefully examined the subject submitted to their consideration, and are satisfied that the object proposed by the resolution, is deserving of the favorable notice of the Legislature.

The distinguished naval officer to whom a tribute of respect is intended to be paid, was a native of the State of New-York, having been born at Staten Island, in the year 1795. At an early period of his life, he removed with his father to Newport, in the State of Rhode Island, where he soon after entered the Navy.

At the opening of the war with Great Britain in 1812, when he was scarcely 17 years of age, he received the appointment of lieutenant, and was immediately ordered to Lake Erie, to superintend the building and rigging of the fleet under the command of Commodore Perry. From this time until the close of the war, his duties were arduous and important, and were discharged amid unusual hardships and privations. In August, 1813, he was placed in command of the ship Niagara, of 22 guns and 130 men, and during Commodore Perry's first cruise in search of the enemy on Lake Erie, his ship was worked with the skill of an experienced commander.

On the arrival of Captain Elliot at that station, Lieutenant Turner was superseded in command of the Niagara by that officer, who was his senior in age and rank: and he was assigned to the command of the Caledonia, the third vessel in rank in the American fleet. Of the latter vessel he had command during the brilliant victory of the 10th of September, which resulted in the capture of the entire British squadron. Though placed as *third* in line in the order of battle, he gallantly brought his ship into action as the *second*, and alone* sustained the flag ship, Lawrence, for

* It may be proper to add, that Commodore Perry in his official account states that "The Ariel, Lieut. Packet, and Scorpion, Sailing

more than two hours, until the gallant Perry abandoned her and brought up the Niagara, which had been unfortunately delayed in coming into action. Of his conduct in this battle, Commodore Perry remarks in his official return to the Secretary of the Navy; "Lieutenant Turner, commanding the Caledonia, brought that vessel into action in the most able manner, and is an officer that in all situations may be relied on."

Immediately after this brilliant achievement, Lieutenant Turner accompanied Commodore Perry to the Moravian Town where he took part in two important battles, Perry acting as aid to General Harrison. In consideration of these important services, the cities of Albany, Philadelphia, and Savannah, presented to Com. Perry handsome swords, with the freedom of the city. The citizens of Boston presented him with a valuable service of plate; and the city of Newport, in consideration of his being a native of that place, presented to him a rich plate of the value of $700. The Legislature of Pennsylvania voted their thanks to Commodore Perry, with a gold medal; also, their thanks and a gold medal to Captain Elliot, who was a native of that State: and to those citizens of Pennsylvania who volunteered their services, a silver medal, with each person's name inscribed thereon. The Legislature of South Carolina gave an elegant sword to Lieutenant Thomas Holdup, who was a *native* of that State, for his gallantry in the battle of Lake Erie.

It is believed that many other like testimonials of respect were paid to Commodore Perry and several of his gallant officers, by public bodies; but the committee have not been able to discover that any mark of public respect has ever been paid to Lieutenant Turner, who participated so largely in the brilliant achievement, and who, though junior in age, was senior in rank and service to all but two of the officers. The committee have been unwilling to impute this singular omission to the fact that he was the only commissioned officer of any distinction in that action, who was born in the State of New-York. Without searching into the cause of

Master Champlin, were enabled to get early into the action, and were of great service."

this neglect, they have satisfied themselves that no officer in the American Navy has exhibited greater skill, bravery and courage, at so early a period of life, if indeed at any; nor more of that noble concomitant of true courage, an unaffected diffidence and modesty of character.

Soon after the victory of Lake Erie, he was removed to a station remote from his native State, and was for a long time, by mistake, entered on the navy register as a native of Rhode Island.

Without coveting distinction, except in the faithful discharge of his duty to his country, and without envying any of the honors and rewards which his comrades so liberally received, and he so richly merited, he has quietly and gradually risen to the highest grade in our navy, respected and honored for his talents as an officer, and beloved for his many virtues as a man.

In view of these facts, and in consideration of the extremely early period of life at which Lieutenant Turner engaged in the public service, and rendered such valuable and heroic aid in achieving the victory on Lake Erie, the committee have instructed their chairman to prepare the following resolution, which he begs leave respectfully to present.

Resolved, (if the Senate concur,) That the Governor of this State be requested to procure a suitable sword, with appropriate devices and emblems thereon, and to present the same to Captain Daniel Turner, of the United States Navy, a native of this State, as a token of the high estimation which his native State entertains of his talents as an officer, and of his personal bravery, evinced on several occasions, and especially in his command of the Caledonia during the battle of the 10th of September, 1813, when he was but 17 years of age.

OFFICERS OF THE U. S. SHIP UNITED STATES.

Captain, JESSE WILKINSON. *Lieuts.*, Joseph Myers, John H. Smith, Zachariah F. Johnston, Alexander G. Gorden, H. H. Rhodes, Hampton Westcott, William D. Porter, Charles G. Hunter. *Surgeon*, G. R. B. Horner. *Purser*, Dudley Walker. *Acting Master*, George Hurst. *Chaplain*, Thomas R. Lambert. *Lieutenants of Marines*, Benjamin Brooke, Lewis Whiting. *Passed Assistant Surgeons*, Samuel Barrington, John B. Elliott. *Professor of Mathematics*, Martin Roche. *Captain's Clerk*, Robert Robertson. *Passed Midshipmen*, William J. H. Robertson, Henry S. Stelwagen, Daniel F. Dulaney, Joshua Humphreys, Francis E. Barry, Dominick Lynch, jr., Charles Thomas. *Midshipmen*, William Craney, J. R. M. Mullany, Montgomery Hunt, William H. Carnes, Melancthon B. Woolsey, Albert S. Whittier, Joshua D. Todd, George M. Preble, Howard Tillotson, Stephen D. Vallette, Alexander H. Cass, Charles S. McDonough, Hambleton Porter, Henry H. Kuhn. *Boatswain*, William Hart. *Gunner*, Joseph Allen. *Carpenter*, Richard Thomas. *Sailmaker*, J. C. O'Connor.

NOTICES

Of the principal donations to the Cabinets of the Naval Lyceum, since the 1st of March, of the present year.

Numerous other very acceptable articles of less value have been received within the same period, a detailed list of which, would occupy too much space.

Donations.	*By whom presented.*
Engraved Portrait of King William the 4th, of England.	James Buchanan, Esq., H. B. M. Consul, New-York.
Three barrels of Shells, from the Mediterranean.	Com. Daniel T. Patterson, U. S. Navy.
Three Boxes, containing a complete series of the Etna Lavas.	From the same, and from Mr. Payson, U. S. Consul, at Messina.

Atlas Universel de Geographie, Physique, Politique, Statistique, et Mineralogique. 6 vols. folio—very valuable.	Messrs. E. & G. W. Blunt.
A splendid case of Insects, from Brazil.	Lieut. A. H. Marbury, U. S. Navy.
Twenty-two Persian Manuscripts, very rare—noticed in second number of the Magazine.	William B. Llewellyn, U. S. Consul, at Salonica, Turkey.
A collection of Stalactites, Fossils, Shells, &c.	Rev. George Jones, U. S. Navy.
Several Charts.	Mr. W. Bigelow.
A splendid chart of Charleston Harbor, the adjacent Coast and Country.	Maj. A. D. Graham, U. S. Army.
Two bound volumes of the New-York Daily Advertiser, for 1794 and 1795.	Thomas W. C. Moore, Esq., of New-York.
A box containing numerous valuable skins of Birds, from the Pacific.	Capt. E. A. F. Vallette, U. S. Navy.
A box containing Bird Skins, and various Shells.	From Lieuts. G. N. Hollins, Murray Mason, and Surgeon Ruschenberger, of the U. S. Ship Peacock, then at Madagascar.
Seventeen volumes of the Encyclopedia Britannica, and nine volumes of the Annual Register.	Thomas W. C. Moore, Esq., of New-York.
Duplicates of the above.	do. do. do.
A splendid chart of Charleston Harbor, the adjacent Coast and Country.	Maj. J. D. Graham, U. S. Army.
Several Pamphlets.	Lieutenant J. S. Nicholas, U. S. Navy.

Specimens of Miniature Cutlery.	Mrs. Isabella Bolton.
Rifle Ball, and two Bullets, from the field of Waterloo.	Mr. Charles H. Haswell.
A portion of the Water of Lake Erie, used on the day of the Grand Canal Celebration.	Mrs. Isabella Bolton.
Scorpio and Scolopendra, from Central America.	Dr. M. G. Delaney, U. S. Navy.
Nicopodium Sempervivum, St. Blass, Mexico.	do. do. do.
Two bound volumes of the Daily Advertiser, for 1794 and 1795.	Thomas W. C. Moore, Esq., of New-York.
A Farthing, "Gulielmus et Maria," 1694.	Mr. Charles H. Haswell.
A box containing numerous specimens of the Skins of Birds.	Capt. E. A. F. Vallette, U. S. Navy.
Miniature Portrait of Commodore Preble.	Midshipman George H. Preble.
Wine Bottle, from Great Fire, New-York.	James Overing, Esq.
Specimen of Native American Gold.	Charles O. Handy, Esq.
Specimen of Asbestos.	do. do.
"Spain Revisited, by the Author of a Year in Spain."	Lieut. A. Slidell, U. S. N.
Albatros, Terns, a Swallow, and various specimens of Shells, from U. S. Ship Peacock, 1835.	Lieuts. G. N. Hollins, Murray Mason, and Dr. W. S. W. Ruschenberger.

"History of Jemima Wilkerson."	Anonymous.
A marble bust of Washington, executed at Florence by Greenough.	John C. Halsey, Esq., N. York.

U. S. NAVAL LYCEUM.

The following gentlemen have recently become members of the U. S. Naval Lyceum.

Honorary Member. Luman Reed, Esq. of New-York.

Corresponding Members. Jeremiah Johnson, Esq. of Brooklyn, and John C. Halsey, Esq. of New-York.

Resident Members. Lieut. Hiram Paulding, Lieut. John W. Turk, Lieut. John E. Bispham, Chaplain Rev. George Jones, Passed Assistant Surgeon Ceorge Clymer, and Passed Midshipman Dominick Lynch, Jun.

Absent Members. Commodore Daniel T. Patterson, Commodore Lewis Warrington, Master Commandant E. F. Valette, Lieut. Oscar Bullus, Lieut. John H. Marshall, Lieut. Fredrick Varnum, Lieut. Joseph Myers, Lieut. Z. F. Johnston, Lieut. Hampton Westcott, Lieut. Charles G. Hunter and Lieut, H. H. Rhodes, Surgeon Bailey Washington, Passed Midshipmen John P. Gilliss, and Charles W. Morris, and Purser, Dudley Walker.

PROMOTIONS IN THE U. S. NAVY.

Passed Midshipmen John K. Mitchell, Thomas Turner, Henry Moore, Charles H. Poor, James F. Schenck and John B. Cutting, to be Lieutenants, from Dec. 22d, 1835.

Passed Midshipman Temple M. Washington, to be a Lieutenant, from January 12th, 1836, and

Passed Midshipman Lewis G. Keith, to be a Lieutenant from March 17th, 1836.

RECENT ORDERS AND CHANGES.

Surgeon F. W. Patton ordered to the Naval Hospital at Pensacola, to relieve Surgeon J. Hulse.

Assistant Surgeon R. M. Baltzer ordered to the Naval Hospital at Philadelphia.

Assistant Surgeon L. W. Minor ordered to the Rendezvous at Baltimore.

Lieut. H. H. Cocke ordered to the Navy Yard at Pensacola. Vice Lieut. J. M. McIntosh relieved.

Assistant Surgeon H. N. Glentworth ordered to the Sloop-of-war Boston.

Assistant Surgeon Geo. Clymer takes passage in the Frigate United States, for duty on board the Sloop John Adams, in the Mediterranean.

Passed Midshipman J. F. Mercer, and *Midshipman* W. E. Newton, ordered on coast survey, to be attached to the Schooner Experiment.

Lieut. Wm. M. Armstrong ordered to take command of the Receiving Ship at Norfolk Vice Lieut. A. Fitz Hugh relieved.

Passed Midshipman D. D. Porter ordered on the coast survey, to be attached to the Schooner Jersey, in place of Passed Midshipman O. Fairfax relieved.

Midshipman F. Oakes ordered on coast survey, to be attached to the Schooner Experiment.

Passed Midshipman W. Scandrett Smith ordered to the Rendezvous at Norfolk, in place of Passed Midshipman C. H. Poor promoted and relieved.

MARRIAGE.

Married, at West-Neck, L. I., on the 19th of April, by the Rev. Mr. Carmichael, Melancthon Smith of the U. S. Navy, to Mary I. daughter of Thomas Jones, Esq.

METEOROLOGICAL OBSERVATIONS FOR THE MONTH OF MARCH, 1836,

Made at the U. S. Naval Hospital, N. Y. Station. WILLIAM SWIFT, M. D., Surgeon. Longitude 74° W. Latitude 40° 42′ N. Variation 4° 26′ W.

	DAY OF THE		THERMOMETER			BAROMETER			WIND						WEATHER			RAIN	REMARKS
									DIRECTION			FORCE							
Moon	Mth	Week	8 R	Noon	8 S.	8 R.	Noon	8 S.	8 R.	Noon	8 S	8 R.	Noon	8 S.	8 R.	Noon	8 S.	Q'n'ty.	
	1	T.	30	32	32	29.66	29.53	29.45	S. W.	S. W.	S. E.	light	light	light	rain	rain	rain	.50	SITUATION OF THE INSTRUMENTS UNCHANGED.
	2	W.	22	29	18	29.74	29 96	30.11	N. W.	N. W.	N. W.	light	fresh	mod.	fair	fair	fair		March 8. Slight fall of snow.
	3	T.	16	32	28	30 15	30.18	30.13	S. W.	W. S. W.	S. W.	light	light	light	clear	fair	fair		10. Rain this afternoon. At 10, P. M. Barometer 29 37. Commenced blowing.
☺	4	F.	24	40	31	30.13	30.06	29 86	S. W.	S. S. E.	S.	light	light	light	fair	fair	fair		13. Commenced snowing at half-past 8, P. M., which soon changed to rain.
	5	S.	26	41	26	29.54	29.62	29.77	S. W.	N. W.	N. W.	light	fresh	mod.	fair	cloudy	fair		22. Commenced snowing at 8, A. M., ended at 3, P. M. Snow 6 in.
	6	B.	16	48	28	29.95	29 93	29.83	N. E.	S. E.	S. W.	light	light	light	hazy	cloudy	cloudy		30. Commenced snowing 1-4 past 7, A. M., and soon cleared off.
	7	M.	24	36	29	29.81	29.83	29.78	S. W.	W. N. W.	S. W.	light	light	light	clear	fair	cloudy		
	8	T.	26	40	29	29.71	29.74	29.74	S. E.	S. W.	S. W.	light	light	light	snow	fair	fair		
	9	W.	16	39	29	29.95	30 05	29.98	S. E.	E. S. E.	E.	calm	light	light	fair	fair	fair		
◑	10	T.	30	39	40	29.92	29.82	29.53	N. E.	N. E.	S. E.	light	light	light	foggy	foggy	cloudy	.75	**RESULT.**
	11	F.	34	45	29	29.47	29.70	29.78	S. W.	S. W.	W.	fresh	fresh	fresh	cloudy	cloudy	fair		THERMOMETER.
	12	S.	14	24	18	30.11	30 19	30.22	W.	N. W.	W. S. W.	fresh	mod.	mod.	fair	fair	fair		Mean temperature for the month - - 31°
	13	B.	10	33	30	30.45	30 43	30.22	N.	S. E.	S. E.	light	light	mod.	fair	fair	cloudy		Highest ditto, on the 24th, at noon - 59
	14	M.	34	52	36	29.95	29.93	30.02	S. W.	S. W.	N. W.	light	light	mod.	cloudy	cloudy	fair	.25	Lowest ditto, on the 13th, at sunrise, 10
	15	T.	22	33	28	30 27	30.30	30.33	N. W.	N.	N. W.	mod.	mod.	mod.	cloudy	fair	clear		Greatest daily variation, on the 24th, 34
	16	W.	18	35	28	30.45	30 48	30 46	W.	W.	W. S. W.	light	light	light	fair	fair	cloudy		Least ditto, on the 1st, - - - - - - - 2
●	17	T.	30	43	35	30.05	29.91	29.87	S. E.	S. W.	S. W.	light	light	light	cloudy	hazy	cloudy		Range - - - - - - - - - - - - 49
	18	F.	40	41	32	29.74	29.92	30.07	N. W.	W.	N. W.	fresh	fresh	fresh	fair	fair	fair		BAROMETER. Inches.
	19	S.	18	41	23	30 27	30 25	30 17	W. N. W.	N. W.	S.	mod.	light	light	fair	fair	cloudy		Mean atmospheric pressure for the month - - - - - - - - - - 30.141
	20	B.	24	33	29	30.03	30.03	29.99	N. W.	N. N. E.	S. W.	light	light	light	clear	fair	fair		Greatest ditto, on the 25th, at noon 30.490
	21	M.	19	49	30	30 03	30.02	29.93	N. N. E.	S. E.	S. E.	light	light	light	fair	cloudy	cloudy		Least ditto, on the 1st, at sunrise, 29.450
	22	T.	32	41	32	29.72	29 65	29.63	S. E.	W. N. W.	N. W.	light	light	light	hazy	snow	cloudy		Greatest daily variation, on the 10th, .390
	23	W.	24	34	26	29.88	30.03	30.07	W. N. W.	N. W.	S. W.	light	fresh	mod.	hazy	fair	hazy		Least ditto, on the 8th and 6th - - .030
	24	T.	25	59	37	30 12	30.09	30.05	S.	S. S. E.	E.	light	light	light	clear	cloudy	cloudy		Range - - - - - - - - - - - - 1.040
◑	25	F.	26	36	30	30.22	30.30	30.31	N.	N.	N.	mod.	mod.	mod.	clear	fair	fair		Quantity of rain - - - - - - 1.50
	26	S.	20	35	29	30.44	30.19	30.42	N.	N.	S. W.	mod.	mod.	light	fair	fair	fair		Quantity of snow, - - - - - - 6.00
	27	B.	26	42	33	30.30	30.20	30.06	S. W.	S. W.	S. S. E.	light	mod.	light	hazy	fair	fair		Fair days, 9; rain on 3; snow on 4.
	28	M.	32	53	40	29.97	30.02	30.02	W.	N.	N. E.	light	light	light	cloudy	cloudy	drizzly		Prevailing winds, S. W.
	29	T.	34	48	38	30.14	30.24	30.23	N. E.	N. E.	E. N. E.	light	light	light	cloudy	cloudy	cloudy		
	30	W.	32	35	34	30.30	30.35	30 32	N. E.	N. E.	N. N. E.	mod.	light	light	cloudy	snow	cloudy		
	31	T.	29	46	39	30.35	30.36	30.32	N. W.	N. W.	S.	light	light	light	hazy	fair	cloudy		

METEOROLOGICAL OBSERVATIONS FOR THE MONTH OF APRIL, 1836,

Made at the U. S. Naval Hospital, N. Y. Station. William Swift, M. D., Surgeon. Longitude 74° W. Latitude 40° 42′ N. Variation 4° 26′ W.

Moon	Day of the Mth.	Week	Thermometer ☉ R	Noon	☉ S	Barometer ☉ R.	Noon	☉ S.	Wind Direction ☉ R.	Noon	☉ S.	Wind Force ☉ R.	Noon	☉ S.	Weather ☉ R.	Noon	☉ S.	Rain Quan.	Remarks
☽	1	F.	30	53	40	30.21	30.13	30.05	S. W.	S. E.	S. E.	light	light	light	fair	fair	cloudy		SITUATION OF THE INSTRUMENTS UNCHANGED.
	2	S.	33	57	44	29 97	29.91	29.91	W.	S. W.	S.	light	light	light	cloudy	fair	cloudy		10th. At 6.45 A. M. Commenced raining; at 11 A. M., ceased.
	3	B.	33	52	48	29.84	29.85	29 83	N. W.	N. N. W.	S. W.	light	light	light	hazy	fair	cloudy		13th. At 6 45 A. M. Commenced snowing; at meridian, turned to rain; at 10 P. M. ceased raining. Snow 3 1-2 inches.
	4	M.	33	48	42	29.81	29.75	29 72	N.	N. E.	N.	light	light	light	cloudy	cloudy	cloudy		18th. At 2 30 P. M. Light rain, and continued during the night in showers.
	5	T.	32	42	39	29 84	29.91	29.92	N.	N.	N.	mod.	mod.	light	fair	fair	clear		19th. Showers of rain during the day.
	6	W.	25	40	30	30.02	30 05	30.08	N. N. W.	N. N. W.	N. N. W.	mod.	mod.	mod.	clear	cloudy	cloudy		21st. During the night, squalls of rain with very high wind from the westward.
	7	T.	24	40	34	30.17	30.20	30.16	N. N. W.	S. W.	S. E.	mod.	light	light	fair	fair	fair		22d. Aurora Borealis of great splendor.
	8	F.	30	48	44	30.16	30.14	30 03	S. W.	S. E.	S.	light	light	light	hazy	fair	cloudy		26th. During the night, the wind blew very fresh from the northw'd and westw'd.
☽	9	S.	44	64	58	29.92	29 81	29.75	S. S. E.	S. E.	S. S. E.	light	light	mod.	cloudy	cloudy	cloudy		29th. At 6 A. M. Commenced raining, accompanied with thunder and lightning; at 9 A. M., ceased raining.
	10	B.	54	58	34	29.62	29.53	29.87	S. S. W.	W. S. W.	N. W.	mod.	fresh	mod.	cloudy	cloudy	clear	0.28	30th. During the night, heavy showers of rain, with thunder and lightning.
	11	M.	26	36	32	30.04	30.07	30.10	N. N. W.	W.	N. W.	light	mod.	mod.	fair	fair	fair		
	12	T.	22	30	30	30 34	30.37	30.36	N.	N.	S. E.	mod.	mod.	light	fair	fair	fair		
	13	W.	30	42	38	30 29	30.12	29 81	S. E.	E. S. E.	E. N. E.	light	mod.	fresh	cloudy	rain	rain	3.00	
	14	T.	34	53	48	29.56	29.59	29.60	W.	W.	W.	mod.	mod.	mod.	cloudy	clear	hazy		
	15	F.	32	48	38	29.72	29 75	29 90	W.	N. W.	N.	light	mod.	mod.	fair	cloudy	cloudy		
●	16	S.	30	46	34	30.07	30 20	30.20	N. W.	N. N. E.	S. E.	light	light	light	fair	fair	fair		
	17	B.	32	56	42	30 22	30.22	30.22	S. S. W.	S. E.	S E.	light	light	light	cloudy	cloudy	cloudy		
	18	M.	40	63	51	29.96	29.93	29 87	N. E.	S. E.	S. E.	light	light	light	cloudy	cloudy	rain	0.20	
	19	T.	48	53	47	30.00	30 12	30.14	S.	S. E.	E. S. E.	light	light	light	cloudy	cloudy	cloudy	0.19	
	20	W.	40	60	50	30 20	30.30	30.30	N. by E.	N.	S. E.	light	mod.	light	cloudy	fair	fair		
	21	T.	44	57	44	30 10	30.00	29.72	N. N E.	S.	S. E.	light	mod.	mod.	foggy	cloudy	foggy		
	22	F.	40	42	42	29.70	29.92	30 10	W.	W. N. W.	N. W.	v strong	strong	mod.	cloudy	fair	fair		
	23	S.	34	53	44	30 17	30 12	30.01	E. S. E.	S. by E.	S. by E.	light	fresh	mod.	cloudy	fair	fair		
◐	24	B.	42	52	48	30.03	30.17	30 25	N. N. W.	N. W.	N. W.	mod.	mod.	mod.	cloudy	fair	fair		
	25	M.	30	46	40	30.46	30.48	30.34	N. by E.	S.	S. S. E.	light	light	mod.	fair	fair	fair		
	26	T.	44	67	67	30 07	29.94	29 80	S.	S. W.	S. W.	light	mod.	fresh	cloudy	fair	cloudy		
	27	W.	58	62	60	29 84	29.96	30 03	N. W.	N. W.	N. W.	fresh	fresh	mod.	fair	fair	fair		
	28	T.	42	61	50	30.25	30 28	30.28	N. E.	S. E.	S. E.	light	light	light	fair	fair	cloudy		
	29	F.	50	68	62	30 18	30.10	29.96	E. S. E.	S. W.	S. W.	light	light	light	cloudy	cloudy	clear	0.75	
	30	S.	52	61	48	30.14	30.28	30.30	N. N. W.	N. E.	S. by E.	light	light	light	cloudy	cloudy	fair	0.12	

RESULT.

THERMOMETER.

Mean temperature for the month	44°
Highest ditto, 29th, at meridian	68
Lowest ditto, 12th, at sunrise	22
Greatest daily variation, 10th and 17th	24
Least ditto, 22d.	2
Range	46

BAROMETER. Inches.

Mena atmospheric pressure for the month	30.032
Greatest ditto, 25th, at meridian	30.480
Least ditto, 14th, at sunrise	29.560
Greatest daily variation, 13th.	00.480
Least ditto, 17th.	00 000
Range	00.920

Quantity of rain, 4.93 inches.
" " snow, 3 50 "

Fair days, 7; rain on 7
Snow on 1; Electrical phenomena on 2.
Prevailing wind, southeasterly.

OBITUARY.

Died, on the 23d inst., after a short illness, at his seat, Montgomery-Place, near Red Hook, Dutchess County, N. Y., the Hon. EDWARD LIVINGSTON, in the 72d year of his age.

The unexpected death of this distinguished and excellent individual is a national loss; and, while it prostrates an amiable family in overwhelming grief, will carry wide affliction among the great and good, throughout the Union.

The unwelcome intelligence reaches us at a moment, when it is in our power only—for the passing time—to present to our readers a brief abstract of his life, from a paper of the day; to express, by a word, our sympathy with those suffering the deepest sorrows of the bereavement; and thus to record a slight tribute of respect to the high talents, winning amiability, philanthropy of heart, and exalted reputation of the departed patriot and statesman.

"Mr. Livingston was born at Clermont, on the Manor of Livingston. His education was commenced at Albany, and continued afterwards at a grammar school at Kingston, N. Y. He entered the College of New-Jersey, at Princeton, in 1779, and took his degree of Bachelor of Arts two years afterwards.

"Mr. Livingston studied law, under the direction of his distinguished brother, the late Chancellor Livingston, and was admitted to the bar of New-York, in 1785. From this period, until 1794, he was engaged in the practice of the law. In that year he was elected to Congress, as member for the Counties of Queens and Richmond.

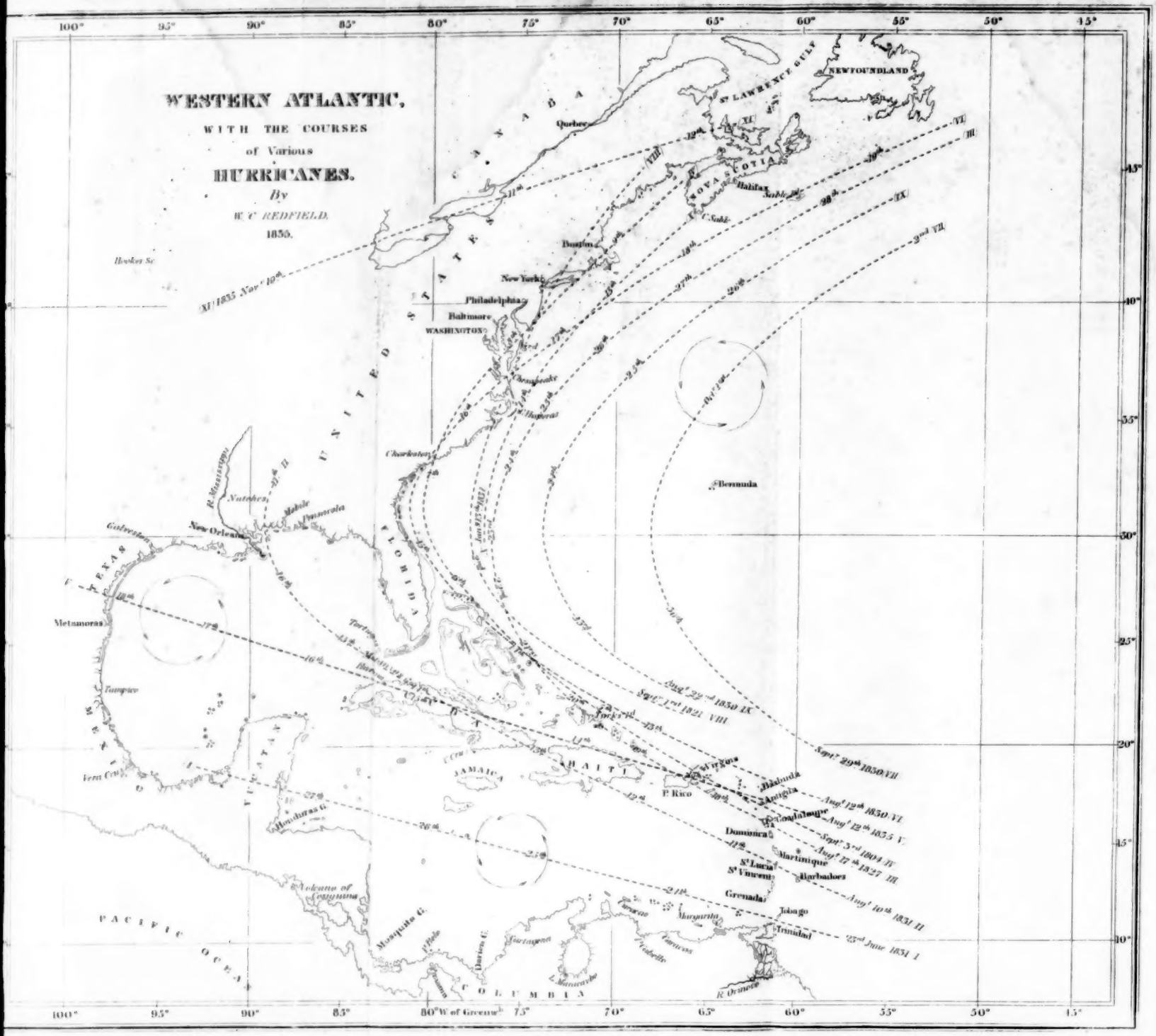
"The entire representation of the State of New-York, in Congress, at the time, consisted of but ten members. At the close of the Session of 1801, he declined a re-election, and soon after received the appointment of Attorney of the United States, for the district of New-York.

"In 1804, Mr. Livingston left his native State to reside in New-Orleans, where he continued his professional duties in the practice of law, till the invasion of Louisiana by the British, when he tendered his services to General Jackson

as aid-de-camp, and continued with him till the close of the war.

"At this period, the system of municipal law, in Louisiana, was very defective; and, in 1820, Mr. Livingston, with two other gentlemen, was appointed to revise it. This work was ably completed by him, presented to the Legislature in 1823, and adopted. In 1829, the Legislature of Louisiana elected him a member of the Senate of the United States, from which station he was called into the Cabinet in 1831, by President Jackson, to fill the office of Secretary of State. Mr. Livingston retired from the Cabinet in 1833, and was, at the same time, appointed Ambassador Extraordinary and Minister Plenipotentiary to France, from which mission he returned scarce a year since."

Mr. Livingston's "Criminal Code" has secured to him an enduring name, among the first Jurists of the age; and papers, furnished by his pen as a Statesman, will ever stand in the archives of his country, as proud memorials of his exalted talents and patriotism.


WESTERN ATLANTIC,
WITH THE COURSES
of Various
HURRICANES.
By
W. C. REDFIELD.
1836.
Quebec
NEWFOUNDLAND
St LAWRENCE GULF
NOVA SCOTIA
Halifax
Sable I.
C. Sable
Boston
New York
Philadelphia
Baltimore
WASHINGTON
Charleston
Bermuda
New Orleans
Galveston
Natchez
Mobile
Pensacola
Metamoras
Tampico
Vera Cruz
Tortugas
Matanzas
Havana
JAMAICA
HAITI
P. Rico
Virgins
Bahama
Antigua
Guadaloupe
Dominica
Martinique
St Lucia
St Vincent
Barbadoes
Grenada
Tobago
Trinidad
Margarita
Cumana
Laguayra
Puerto Cabello
Volcano of Coseguina
Mosquito G.
Darien G.
Cartagena
L. Maracaibo
R. Orinoco
PACIFIC OCEAN
COLUMBIA
Hondura G.
Nov 1835
Sept 29th 1830 VII
Aug 22nd 1830 IX
Sept 1st 1821 VIII
Aug 12th 1830 VI
Aug 12th 1835 V
Sept 3rd 1804 IV
Aug 17th 1827 III
Aug 10th 1831 II
23rd June 1831 I
100°
95°
90°
85°
80°
75°
70°
65°
60°
55°
50°
45°
40°
35°
30°
25°
20°
15°
10°
80° W of Greenwh